

**Section H**  
**TERMS AND CONDITIONS FOR CONSTRUCTION SERVICES**

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## **1. GENERAL**

### **1.1 INTRODUCTION**

- A. Department of Energy (DOE) has designated the Spallation Neutron Source (SNS) Project an Associate Laboratory of Oak Ridge National Laboratory (ORNL). DOE has entered into an agreement with UT-Battelle, LLC (UT-Battelle) under Prime Contract Number DE-AC05-00OR22725, to design and construct the SNS Project. For purposes of this subcontract, whenever the term Owner is used, it shall mean the Department of Energy.
- B. The Engineer is Knight/Jacobs Joint Venture (Knight/Jacobs), an association of Lester B. Knight, Inc. and Sverdrup CRSS, a division of Jacobs Facilities, Inc. For purposes of this subcontract, whenever the terms Engineer, Architect, Architect-Engineer (AE), Designer, or Design Consultant are used, they shall mean Knight/Jacobs.

### **1.2 DEFINITIONS**

- A. Construction Manager (CM) is Knight/Jacobs Joint Venture, an association of Lester B Knight, Inc and Sverdup CRSS, a division of Jacobs Facilities, Inc., and is defined as the Subcontractor responsible to the Owners Representative and Owner for the execution of the project for which it has contractual authority.
- B. Owner is defined as the Department Of Energy.
- C. Owners Representative is defined as UT-Battelle, LLC.
- D. Subcontract is defined as this agreement, to include purchase orders and task orders, between CM and Subcontractor in which a significant part of the supplies or services being obtained is for use by and for the Owner and/or Owners Representative.
- E. Subcontract Documents are defined as all documents listed in Section A, Block 7, Table of Contents, of the Solicitation, Offer, and Subcontract Award, excluding Proposal Instructions and Representations and Certifications, and other Statements of Offerors. .
- F. Days as referred to in all sections of the subcontract is defined as calendar days.

### **1.3 CM REPRESENTATIVES**

- A. Procurement Manager (PM), Procurement Contract Specialists (PCS), Subcontract Administrator's Representative (SAR). Notwithstanding any of the other provisions of this subcontract, the PM, PCS or SAR shall be the only individual's authorized to direct the effort or in any way to change, amend, or modify any of the terms of this subcontract. Except as expressly provided elsewhere in this subcontract, where approval is required by the CM under the terms of this subcontract, it shall be construed to mean the approval of the PM, PCS or SAR. In the event the CM effects any change at the direction of any other person, the change will be considered as having been made without authority and an adjustment will not be made in the subcontract value or delivery schedule as a result thereof. No agreement or understanding will be binding on the CM unless made in writing and signed by the PM, PCS or SAR. All correspondence and deliverables applicable to this subcontract shall be addressed to the PCS at the address contained in Section A, Block 1 of the Solicitation, Offer, and Subcontract Award (PROC-1015) form.
- B. Deputy Project Manager for Construction (DPjM). The DPjM, or designated alternate, as well as the PM, PCS, and SAR, have authority to provide technical direction and determine the acceptability of the Subcontractor's progress and overall technical performance. This authority is limited to technical direction and approval of work specified within the Summary of Work of this subcontract. The Subcontractor will perform all efforts within the subcontract as directed by the DPjM providing, however, that the DPjM shall not control or direct the physical conduct of the Subcontractor in the performance of its duties. For all purposes under this subcontract, Subcontractor shall be an independent business enterprise and not an agent of the CM. In no event shall the technical direction be construed in any manner that will serve to increase the total amount of this subcontract. The DPjM, or designated alternate, does not have the authority to modify this subcontract.
- C. The Chief Construction Engineer (CCE) has authority to act for the DPjM in the day-to-day management of work performed by the CM in support of this subcontract. The CCE does not have authority to modify this subcontract.

### **1.4 ORDER OF PRECEDENCE**

Any inconsistencies shall be resolved in accordance with the following descending order of precedence:

- (1) Sections of the Subcontract
- (2) Special Conditions
- (3) Terms and Conditions
- (4) Summary of Work (SOW), Specifications
- (5) Drawings

### **1.5 PERFORMANCE AND PAYMENT BOND REQUIREMENTS**

Prior to commencing work on the site or within ten calendar days from award of the subcontract, whichever is sooner, the Subcontractor shall deliver to CM, a Performance Bond and Payment Bond (see Exhibit 1) executed as surety by a corporation

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acceptable to CM who is authorized to issue such bonds in the jurisdiction where the subcontract is to be performed. The bonds shall be in the form of firm commitment, supported by corporate sureties whose names appear on the list contained in Treasury Department Circular 570. The Performance Bond shall be for one hundred percent of the original subcontract price. The increase in protection as a result of increases to the subcontract price shall equal one hundred percent of the increase in the subcontract price. The Payment Bond shall be for one hundred percent of the total subcontract price. The Subcontractor shall provide an increase in protection equal to one hundred percent of any increase in subcontract price during the performance period. The cost of such required bonds must be included in the Offerors proposed price. For fixed price subcontracts, such Performance Bonds and Payment Bonds shall each be based on the total amount of the Offerors proposal. Where the value of the subcontract is based on fixed unit prices, the amounts shall be calculated using Offerors proposed unit prices and estimated quantities provided by the CM.

#### **1.6 SEVERABILITY, NON-WAIVER**

The waiver by the CM of any term, condition, or provision shall not be construed to be a waiver of any other term, condition, or provision, nor shall it be deemed a waiver of any provision in any subsequent performance of this or other subcontracts. If any provision of this subcontract is or becomes void or unenforceable, the remainder shall be deemed valid and enforceable.

#### **1.7 COMPLIANCE WITH LAWS**

- A. Subcontractor shall comply with all applicable federal, state and local laws and ordinances and all pertinent lawful orders, Owner directives, rules, and regulations (including Owner regulations) and such compliance shall be a material requirement of this subcontract. Subcontractor shall, without additional CM expense, be responsible for obtaining any necessary licenses and permits including, without limitation, underground utility permit requirements. Required construction permits shall be in place prior to the Subcontractor performing field activities.
- B. Subcontractor warrants that each chemical substance constituting or contained in supplies furnished by this subcontract is on the list of substances published by the Administrator of the Environmental Protection Agency pursuant to the Toxic Substances Control Act as amended. With each delivery, Subcontractor shall provide CM any applicable Material Safety Data Sheet as required by the Occupational Safety and Health Act and applicable regulations including, without limitation 29 CFR 1910.1200.
- C. In accordance with 29 CFR 1910.1001, the following caution labels shall be placed on products containing asbestos fibers and to the containers of all items containing asbestos in a form that can be inhaled.

**CAUTION  
CONTAINS ASBESTOS FIBERS  
AVOID CREATING DUST  
BREATHING ASBESTOS DUST CAN CAUSE  
SERIOUS BODILY HARM**

The above label shall be printed in letters of sufficient size as to be readily visible and legible.

- D. Subcontractor shall include this clause in all of its subcontracts, at any tier, involving the performance of this subcontract.

#### **1.8 INDEMNITY**

The Subcontractor agrees to release, protect, indemnify, defend and hold harmless the CM, Owners Representative and the Owner, and their affiliates, subsidiary entities, employees, officers, directors, agents and assigns ("Indemnities") free and harmless against any and all claims, demands, losses, costs, expenses, damages, recoveries, deficiencies, judgments, penalties, costs and expenses, including interest, court costs and attorneys fees ("CLAIMS") arising out of or relating to the Subcontractor's performance hereunder, including but not limited to patent infringement, whether the CM is negligent, actively, passively, or not at all, or the CM is alleged or proved to be absolutely or strictly liable, or have breached any duty, representation, or warranty express or implied, except to the extent CLAIMS are caused by the sole negligence or willful misconduct of the Indemnities. The insurance requirements herein shall not be construed to limit this indemnity; it shall be effective to the maximum extent permitted by applicable law. The Subcontractor shall be solely liable for the defense of any and all CLAIMS hereunder, including but not limited to, CLAIMS by any employee of the Subcontractor or any employee of the Subcontractor's Subcontractors, alleging the sole negligence or willful misconduct of the CM, Owners Representative, or the Owner. The parties agree that if any court of competent jurisdiction determines that this indemnity exceeds in extent, scope or amount, that which is permitted by applicable law, such indemnity shall be construed, interpreted, and enforced so as to preserve the maximum indemnity which is permitted.

#### **1.9 LEGAL HOLIDAYS**

For informational purposes, the following legal holidays are observed for work performed on Owner sites for the calendar year:

New Years Day,  
Memorial Day,  
Independence Day,  
Labor Day,  
Thanksgiving Day, and  
Christmas Day.

NOTE: These holidays are subject to change. Subcontractor will be notified of any change as soon as CM is notified.

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#### **1.10 PERIODIC SITE CLOSING DURING DEER HUNTING SEASON**

There may be two weekends during the term of the subcontract wherein the Subcontractor will not be granted access to the site because of deer hunting season. It is anticipated that for one weekend each during November and December the site will be closed, and no access will be authorized.

#### **1.11 CONFIDENTIALITY AND PUBLIC DISCLOSURE**

- A. The Subcontractor shall keep the terms and making of this subcontract confidential. The Subcontractor shall not publicize its involvement with the performance of this subcontract or make public release of any information relating to all or any part of this subcontract except as authorized in writing by the PM. In the event the release of information is authorized, the Subcontractor agrees that in the release of information relating to this subcontract, such release shall include a statement to the effect that the project or effort depicted was or is sponsored by the Agency set forth in the authorization.
- B. For the purpose of this clause, "information" includes but is not limited to, all plans, drawings, specifications, news releases, articles, manuscripts, brochures, advertisements, still and motion pictures, speeches, trade association meetings, symposia, published professional papers, etc.
- C. Two copies of any information to be released must be submitted to the PM for review and clearance sixty (60) days prior to release.
- D. Nothing in the foregoing shall affect compliance with the requirements of any other clause contained herein.
- E. The Subcontractor further agrees to include the requirements of this clause in any lower-tier subcontracts awarded as a result of this subcontract.

#### **1.12 ASSIGNMENT AND RELATIONSHIP**

Neither this subcontract nor any interest therein including any claim there under shall be assigned or transferred by the Subcontractor to another entity, except as expressly authorized in writing by the PM. The CM reserves the exclusive right to assign this subcontract and all rights and interest therein. The Subcontractor is an independent entity and nothing shall be construed to make the Subcontractor an agent or employee of the CM.

#### **1.13 SUBCONTRACT CONSENT**

It is understood that this subcontract may be subject to the consent of the Owners Representative or the Owner. It is agreed that if, as a result of the review for consent, Owners Representative or the Owner directs any changes to the terms and conditions or price currently in the subcontract, an amendment to the proposed subcontract will be prepared by the CM reflecting the directed changes. If upon review of this amendment, the Subcontractor elects not to accept the directed changes, then this subcontract may be cancelled or negotiated with the next offeror without either party incurring further obligations to the other.

#### **1.14 ACQUISITION OF MINERAL INTEREST**

The Subcontractor shall be prohibited from filing for, or otherwise acquiring, any mineral rights in the area being investigated under this subcontract.

#### **1.15 TITLE AND ADMINISTRATION**

Any rights and/or interests acquired under the terms of this subcontract shall pass directly from Subcontractor to the Owner. Agreement may be transferred, in whole or in part, to Owner, Owners Representative or their designee(s), and to the extent of such transfer and notice therefore to Subcontractor, CM shall have no further responsibilities hereunder.

#### **1.16 INFORMATION AND OWNERSHIP**

- A. Unless otherwise provided in the subcontract documents, the Subcontractor will be furnished by the CM, free of charge, one (1) reproducible full size and one (1) reduced copy (if available) all copies of subcontract documents and coordination documents necessary for the execution of the work. All other copies required by the Subcontractor for the execution of the Work will be the responsibility of the Subcontractor.
- B. All documents, drawings, addendum, specifications, and copies thereof furnished by CM are and shall remain the CM's property. The Subcontractor shall use CM's, Owner's Representative, or Owner furnished data only in connection with this subcontract.
- C. Designs, drawings, sketches, illustrations, plans, specifications, descriptions, photographs and scale models along with any model base and/or model cover, and other documents and electronic data furnished by Subcontractor to CM under this subcontract will become the property of Owner upon submittal to CM and will not be returned to Subcontractor. Owner shall have all rights to use, exhibit, photograph, display, lend or publish these materials in any manner, in any style, under any circumstances and at any time or as often as the Owner may choose. Subcontractor shall retain no property interests in those documents.
- D. The Owner, Owners Representative and CM shall at all times have access to the Construction Project wherever it is in preparation and progress. The Subcontractor shall provide facilities for such access if required.
- E. Information or services under the CM's control shall be furnished by CM with reasonable promptness to avoid delay in the orderly progress of the work.

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- F. The CM will be the interpreter of the requirements of the subcontract documents and the judge of performance thereunder by the Subcontractor. The Owner and or Owner's Representative shall be the final interpreter and judge of performance of the project.

#### **1.17 OWNER, OWNERS REPRESENTATIVE OR CM FURNISHED DATA**

- A. CM, Owner's Representative, or Owner furnished data to be delivered through the CM to the Subcontractor shall be specifically set forth in the subcontract as deliverables to the Subcontractor. Accordingly, it is the Subcontractor's responsibility to secure any other cited data; i.e., military specifications, regulatory citations, etc.
- B. If the data to be delivered is (1) not suitable for its intended use; and/or (2) not delivered; or (3) not delivered in a timely manner and such untimely delivery impedes work, then the Subcontractor may request equitable adjustment pursuant to the paragraph entitled "Changes" of these Provisions. Additionally— Title to CM, Owner's Representative, or Owner furnished data shall remain with the CM, Owner Representative, or the Owner, respectively; and

#### **1.18 ROYALTIES AND PATENTS**

Unless otherwise specified in the subcontract document, the Subcontractor shall pay all royalties and license fees. The Subcontractor shall defend all suits or claims for infringement of and patent rights and shall save CM, Owners Representative and Owner harmless from loss or account thereof, except that CM, Owners Representative and Owner shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers' is specified, but if the Subcontractor has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to CM, Owners Representative Owner.

#### **1.19 YEAR 2000 WARRANTY COVERAGE**

- A. While Subcontractor's warranty with respect to its work whether at law or as set forth in the subcontract terms and conditions including but not limited to, paragraph 10.5 Warranty, provides that all of Subcontractor's work be "Year 2000 compliant," for further clarification, Subcontractor represents and warrants that all Subcontractor's work shall be "Year 2000 compliant." Anything in the subcontract to the contrary notwithstanding, in the event Subcontractor's work is found to be defective because it is shown that it is not "Year 2000 compliant" within twenty-four months after the later to occur of, January 1, 2000, or the date the CM, Owners Representative, or Owner accepts delivery of the work at the jobsite, all rights and remedies available to the CM, Owners Representative, and Owner and duties and obligations of Subcontractor at law and under the subcontract terms and conditions, including, but not limited to, Section 10.5, Warranty, shall apply.
- B. For purposes hereof, "Year 2000 compliant" shall mean that: (i) the Work, including, but not limited to any software, hardware, micro processors contained, embedded or used therein or in combination therewith will be able to accurately process data (including but not limited to calculating, comparing, and sequencing) from, into, and between the twentieth and twenty-first centuries and the years 1999 and 2000 and subsequent years, including leap year calculations, when used in accordance with the subcontract terms and conditions and any CM product documentation provided to CM, Owners Representative, or Owner by Subcontractor prior to issuance of the subcontract; (ii) all hardware and software products used in combination with the work properly exchange date data with the work; the work will not abnormally end or provide invalid or incorrect results as a result of date data, specifically including date data which represents or references different centuries or more than one century; (iii) the work includes Year 2000 capabilities, which means that the work will manage and manipulate data involving dates, including single century formulas and multi-century formulas, and will not cause an abnormally ending scenario within the application or generate incorrect values or invalid results involving such dates; (iv) the work provides that all date-related user interface functionalities and date fields include the indication of the century; and (v) the work provides that all date-related data interface functionalities include the indication of century.

#### **1.20 PACKAGING AND MARKING**

Preservation, packaging, and packing of data deliverables shall be in accordance with standard commercial practice, unless otherwise specified in this subcontract. The use of asbestos, excelsior, newspaper, or shredded paper (all types including waxed paper, computer paper and similar hygroscopia or non-neutral material) is prohibited.

#### **1.21 SHIPPING INSTRUCTIONS/RISK OF LOSS**

Shipping charges for goods sold FOB destination are included in the prices contained in the pricing schedule unless separately specified. The Subcontractor shall bear risk of loss or damage to goods rejected by the CM or for which acceptance has been revoked. Until delivery of conforming goods, risk of loss, regardless of cause, is the Subcontractor's responsibility. Title shall not pass until acceptance by the CM.

#### **1.22 CHANGES**

- A. The CM may make changes, at any time, by written notice, within the general scope of this subcontract in any one or more of the following: (1) description of the work to be performed, (2) method and manner of performance, and (3) the amount of work to be furnished. If any such change causes a difference in the price, or the time required for performance, an equitable adjustment shall be made in the price and/or delivery schedule and other affected provisions. Such adjustment shall be made by written modification to this subcontract, signed by both parties. The Subcontractor must assert any request for equitable adjustment to the subcontract price, performance schedule, or both, in writing no later than 10 days from the Subcontractor's first knowledge of the change, or its right to assert such request for equitable adjustment shall be considered waived. Under no circumstance shall any pending request for equitable adjustment or dispute excuse the Subcontractor from proceeding with its performance, as changed, although CM in its sole discretion may receive and act upon any request for equitable

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adjustment at any time before final payment. Failure to agree to any adjustment shall be settled in accordance with paragraph 1.24, Disputes, of these Terms and Condition.

- B. Immediate changes to the subcontract may be made by either the issuance of a Request for Change Proposal/Notice to Proceed (RFCP/NTP), (see Exhibit 2) or Field Work Directive (FWD), (see Exhibit 3). The above documents are used to make changes to the contract while minimizing disruption in the workflow of the project. Definitization of the RFCP/NTP and FWD will be accomplished by issuance of a modification to the subcontract.
- C. The Subcontractor shall submit itemized price proposals including CMCIP Form II (see Exhibit 4) for Subcontractor and sub-tiers for any CM directed change order or request for equitable adjustment in accordance with this term. See Exhibit 5, for a sample copy of the approved proposal format. Subcontractor must submit proposals in this format.
- D. The Subcontractor's price proposal shall be submitted within 10 days, or as otherwise directed by the CM, of Subcontractor's first knowledge of the change or CM's issuance of RFCP/NTP or FWD whichever comes first on Subcontract Change Proposal form (see Exhibit 5). Material, Labor, Equipment and Other Direct Cost shall be summarized and totaled as Construction Direct Costs on the cover sheet. Overhead, Profit, and Bond shall be added as appropriate line items shown below the Direct Construction Costs. Cost estimates or pricing detail backup shall be completely itemized to include Direct Labor man-hours, individual craft, and hourly wage rate., include verifiable labor burden (including craft fringes, FUI, SUI, and FICA) as a separate line item. Workers Compensation shall not be included in the wage rates as such and is covered by the CMCIP. Other Direct Costs detailed backup shall include rental and operator rates for rented or owned equipment, material trucking expenses, and other costs clearly identified and directly allocable to subcontract performance shall be entered in column nine (Other Direct Costs) on the Subcontract Change Proposal form. Proposals or quotations shall be exclusive of State of Tennessee sales and use taxes.
- E. Material and Labor costs shall be itemized by item description, quantity(s) for each item, unit price per item, and extended total price per item. The Subcontractor shall provide copies of material supplier quote sheets, invoices, or purchase orders, as appropriate.
- F. Lump sum cost estimates or price proposals shall be rejected and returned to the Subcontractor for itemization as described above. Failure of the Subcontractor to submit properly itemized cost estimates or price proposals shall not constitute an excusable delay and may result in CM issuing a unilateral modification to perform the change.
- G. The equitable adjustment shall not include increased costs or time extension for delay resulting from the Subcontractor's failure to provide notice or to diligently continue performance. No proposal from the Subcontractor for an equitable adjustment shall be allowed if not asserted within time frames in this clause.

#### **1.23 MODIFICATION OF SUBCONTRACT**

This subcontract contains all agreements between the parties and is complete and accurate as written. The terms and conditions contained in this subcontract may not be added to, modified, superseded, or otherwise altered except by a written modification signed by the PM, PCS or SAR. Adjustments to the subcontract will be made by issuance of a modification to the subcontract.

#### **1.24 DISPUTES**

- A. The Subcontractor and the CM agree to make good-faith efforts to settle any dispute or claim that arises under this subcontract through discussion and negotiation. If such efforts fail to result in a mutually agreeable resolution, the parties shall consider the use of Alternative Disputes Resolution (ADR). In the event non-binding mediation or arbitration is agreed upon, the site of the proceedings shall be Oak Ridge, Tennessee. The mediator or arbitrator shall allocate cost, except that there shall be no pre-decisional interest costs, and each party shall bear its discretionary costs. In the event that ADR fails or is not used, the parties agree the appropriate forum for resolution shall be the Federal District Court, with venue in the United States District Court for the Eastern District of Tennessee, Northern Division. Provided, however, that in the event the requirements for jurisdiction in Federal District Court are not present, such litigation shall be brought in either Anderson, Knox, or Roane County, Tennessee, in the Circuit or Chancery Court, as appropriate.
- B. The parties agree that substantive issues presented for mediation, arbitration, dispute, claim, litigation, or other effort at resolution shall be determined in accordance with the laws of the State of Tennessee except for Federal Acquisition Regulation (FAR) and Department of Energy Acquisition Regulation (DEAR) clauses which shall be determined in accordance with federal law.
- C. There shall be no interruption in the performance of work, and Subcontractor shall proceed diligently with performance of this subcontract pending final resolution of any dispute arising under this subcontract between the parties hereto or between Subcontractor and its lower-tier Subcontractors.

#### **1.25 CANCELLATION AND DEFAULT**

- A. The CM may cancel or suspend all or any part of this subcontract by written notice. Upon receipt, the Subcontractor shall stop all work, except for work specifically required for complying with the instructions in the cancellation notice. The Subcontractor shall also discontinue placing additional low tier subcontracts and cancel work, both in the Subcontractor's and in any lower-tier Subcontractor's possession. Payment shall be mutually agreed upon based on the percentage of work satisfactorily performed, including costs required to preserve materials, services and work in process, and may include an adjustment for reasonable overhead and profit. The Subcontractor shall not recover any prospective profits or damages due to cancellation. The amount paid to the Subcontractor shall not exceed the amount stated in the face of this subcontract. The Subcontractor shall include this provision in any subcontracts or orders placed in fulfillment of this subcontract.



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- B. If the Subcontractor defaults in performance, breaches its obligations, becomes insolvent through a court or bankruptcy proceeding, or makes an assignment for the benefit of creditors, the CM may cancel this subcontract in whole or in part, with no liability to the CM. The CM may pay the Subcontractor's actual direct costs incurred up to the date of cancellation, in which case the goods/services or uncompleted portion of the subcontract shall become property of the CM, and the Subcontractor shall hold the same for a reasonable time awaiting receipt of the CM's instructions.

#### **1.26 SUSPENSION OF WORK**

- A. Only the PM or PCS may, at any time, by written notice to the Subcontractor, require Subcontractor to suspend, delay, or interrupt all or any portion of the work called for by this subcontract for a period up to 90 days after the notice is delivered to Subcontractor, or for any other period to which the parties may agree. Upon receipt of the notice, Subcontractor shall immediately comply with its provisions and take all reasonable steps, as directed by the PM or PCS, to minimize the incurrence of costs associated with such suspension.
- B. Prior to the expiration of the suspension notice, CM shall either: (1) cancel or extend the notice or (2) terminate the work covered by the notice as provided in paragraph 1.25 of Terms and Conditions of this subcontract. If the suspension notice is canceled or allowed to expire, Subcontractor shall resume work. Any claim by Subcontractor resulting from a Suspension of Work Notice shall be governed by the changes clause of this subcontract.

#### **1.27 ACCEPTANCE**

Acceptance shall be made in accordance with the criteria established in the Summary of Work and/or Specifications, and elsewhere in this subcontract. For technical criteria, the DPJM shall be the sole judge of Subcontractor's work acceptance. The CM shall not be held liable for payment to the Subcontractor for work performed that does not meet the acceptance criteria.

#### **1.28 CONTINGENT AWARDS**

In the event the Subcontractor is unable or fails to meet the CM's production/delivery schedule requirements due to shortage or lack of labor, equipment, materials, tools, transportation, or any other reasons affecting Subcontractor's capacity and the Subcontractor is unable to offer an acceptable corrective action or recovery plan, then the CM reserves the right to award subcontracts to other Subcontractors with the capacity and resources to perform such work. Furthermore, the CM also has the right to cancel this subcontract if the Subcontractor defaults in performance due to any of the foregoing situations.

#### **1.29 SET-OFF**

The CM shall have the right to set-off any amount owing at any time from the Subcontractor to the CM or any of its affiliates against any amount payable at any time by the CM whether or not in connection with this subcontract.

#### **1.30 DELIVERY OR PERFORMANCE SCHEDULE/LIQUIDATED DAMAGES**

- A. Time is of the essence in the Subcontractor's performance. The Subcontractor shall take adequate measures to accomplish all elements of work required within time limits which are set forth in the schedule, if any, and if no schedule is included, within such time limits for meeting the specified shipping date(s) or performance period(s). The Subcontractor shall provide immediate written notice of any actual or potential delay. Failure to maintain scheduled completion shall be considered a breach of the Subcontractor's obligations. If required by the CM, the Subcontractor shall furnish progress reports as directed at no additional cost to the CM. The Subcontractor shall also provide the CM's expediting representatives such information as they may request concerning the Subcontractor's program and schedule. If the Subcontractor demonstrates the potential inability or desire to perform, anticipatory breach may be declared by the CM.
- B. To the extent that liquidated damages do apply, the Subcontractor recognizes that any delay by the Subcontractor in the timely delivery of the goods or services may result in loss to the CM and that such damages are difficult to estimate or determine. The parties agree that, to compensate said loss, the Subcontractor shall pay the CM liquidated damages for the delay as set forth in this subcontract.
- C. The Subcontractor shall provide evidence of causes for delay that were beyond its control or the control of its Subcontractors. If approved by the CM, a written extension of time for completing the work shall be granted for the period reasonably justified.
- D. In addition to any other damages, the Subcontractor shall be liable for any costs incurred by the CM, Owners Representative, or the Owner, as a result of charges, fines, penalties, or any other action, if those costs are directly attributable to any failure on the Subcontractor's part to successfully complete the requirements of this subcontract.

#### **1.31 STANDBY TIME**

The CM shall pay costs for standby time to the Subcontractor when resources specifically to be provided by the CM, Owners Representative, or the Owner under this subcontract are delayed. This delay must exceed two hours per day and must result in a total stoppage of the work. "Work-around" shall be attempted by the Subcontractor to the maximum extent possible prior to standby. Two-hour delay on an infrequent basis shall be considered within the prepaid bid price. Weather delays shall be planned for and will not be paid. Lost workdays due to bad weather shall be anticipated on the prior day to avoid unnecessary mobilization. The CM must approve all weather-related suspensions of work.

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#### **1.32 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK**

- A. Unless otherwise specified in the subcontract documents, the Subcontractor, as soon as practicable after the execution of the subcontract, shall furnish to the CM in writing for acceptance by CM, a list of the names of the sub-tiers proposed for certain portions of the Work. The CM shall promptly notify the Subcontractor in writing if the CM, after due investigation, has reasonable objection to any sub-tier on such list.
- B. The Subcontractor shall not contract with any sub-tier or any person or organization (including those who are to furnish materials or equipment fabricated to a special design) proposed for portions of the Work designated in the subcontract documents or, if none is so designated, with any sub-tier proposed for the principal portions of the Work who has been rejected by CM.
- C. If CM refuses to accept any sub-tier or person or organization on a list submitted by the Subcontractor in response to the requirements of the subcontract documents, the Subcontractor shall submit an acceptable substitute.
- D. If the Owner or Owners Representative or CM requires a change of any proposed sub-tier or person or organization previously accepted and the change is not as a result of default or unsatisfactory performance, the subcontract price shall be increased or decreased by the difference in cost occasioned by such change and an appropriate modification will be issued in accordance with the Changes Clause.
- E. All Work performed for the Subcontractor by a sub-tier shall be pursuant to an appropriate agreement between the Subcontractor and sub-tier which shall contain provisions that:
  - (1) Preserve and protect the rights of Owner, Owners Representative and CM under the subcontract with respect to the Work to be performed under the agreement so that the subcontracting thereof will not prejudice such rights.
  - (2) Require that such Work be performed in accordance with the requirements of the subcontract documents.
  - (3) Require submission to the Subcontractor of applications for payment under each agreement to which the Subcontractor is a party, in reasonable time to enable the CM to apply for payment in accordance with the Progress Payments Clause contained herein.
  - (4) Require that all claims for additional costs, extensions of time, or other claims with respect to subcontracted portions of the Work shall be submitted to the Subcontractor in sufficient time so that the Subcontractor may comply in the manner provided in the subcontract documents for like claims by the Subcontractor upon the Owner, Owners Representative and CM.
  - (5) Notices may be served personally on the designated representative of either party at the job site or may be served by first class mail or overnight delivery service direct to the address shown on the face hereof. Notice shall be effective upon receipt, or if by first class mail upon receipt, or 5 business days of the date of mailing, whichever occurs first.

#### **1.33 FABRICATION OR ACQUISITION OF NONEXPENDABLE PROPERTY**

The Subcontractor shall not fabricate nor acquire under this subcontract, either directly or indirectly through a subcontract, any item of non-expendable property without written approval from the PM. If approved, the equipment is subject to the appropriate "Government Property" clause Section 1.36. If that clause is not contained in the subcontract prior to approval, the approval constitutes incorporation of the clause.

#### **1.34 GOVERNMENT PROPERTY**

- A. CM may furnish to Subcontractor property as may be required for performance of work under this subcontract, or have Subcontractor acquire such property as mutually agreed. Title to property furnished or acquired shall vest in the Owner, and hereafter be referred to as "Government property." If Subcontractor purchases property for which it is entitled to be reimbursed as a direct item of cost, title shall pass to the Owner upon delivery of the property to CM. Title to all other property, the cost of which is reimbursable to Subcontractor shall pass to the Owner upon the earlier of (1) issuance of property for use in performance, (2) processing property for use in performance, or (3) reimbursement of cost of property. Title shall not be affected by incorporation or attachment to any property not owned by the Owner, nor shall any Government property become a fixture or lose its identity because it is affixed to any realty.
- B. CM shall deliver to Subcontractor the Government property stated in this subcontract, if any. If the property is not suitable for its intended use or is not delivered to Subcontractor as specified in this subcontract, CM shall equitably adjust affected provisions when the facts warrant an equitable adjustment and Subcontractor submits a written request for such adjustment within 14 calendar days of delivery of the Government property. Said equitable adjustment shall be Subcontractor's exclusive remedy.
- C. Subcontractor shall establish and maintain a property control program for use, maintenance, repair, protection, and preservation of Government property consistent with good business practices and as may be prescribed by the CM until disposed of in accordance with this clause. Subcontractor shall cause all Government property to be clearly marked as Government property. Except as may be authorized in writing, Government property shall be used only for the performance of this subcontract.
- D. Responsibility for loss or damage to Government property shall be determined in accordance with the laws applicable to this subcontract under paragraph 1.24, Disputes. CM, Owners Representative, and the Owner shall have access at all reasonable times to the premises where any Government property is located for the purpose of inspecting the property.
- E. Upon completion of the work under this subcontract, Subcontractor shall submit, in a form acceptable to the CM, inventory schedules covering all Government property not consumed in the performance of this subcontract (including any scrap).

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Subcontractor shall hold the same at no charge for a period up to 60 days or a longer period if mutually agreed. After this, Subcontractor shall dismantle, prepare for shipment and at the CM's direction, store or deliver said property (at CM expense), or make such other disposal of the property as directed by the CM. The net proceeds of any such disposal shall be credited to the cost of the work covered by this subcontract or shall be paid as the CM may direct.

#### **1.35 CONTINUITY OF SERVICES**

The Subcontractor recognizes that services under this subcontract are vital to the Owner and must be continued without interruption. During subcontract performance, a successor, Owners Representative, or another contractor may be substituted as the CM. Subcontractor shall exercise its best efforts and cooperation to effect an orderly and efficient transition. Such substitution shall not constitute grounds for termination of this subcontract or a subcontract change that would increase the subcontract price or lengthen the period of performance.

#### **1.36 SUBCONTRACTOR PERFORMANCE EVALUATION PROGRAM**

- A. The CM has established a performance evaluation program to (1) assist Subcontractors in improving performance and (2) aid in the source selection process relative to future work. The program applies to all construction subcontracts with a value of \$100,000 or more.
- B. At project completion, or every six months during the term of the subcontract, the PM will provide a copy of the completed evaluation form of the Subcontractor's performance to the Subcontractor. A satisfactory rating is required. Ratings are used by the CM to recognize outstanding performance, as well as identify areas of deficient performance in order that corrective actions can be taken to foster continuous improvement. Substandard performance in any area will be cause to notify the Subcontractor immediately.
- C. Deficient ratings by the CM may be appealed to the PM within 30 calendar days. The decision of the PM shall be final and conclusive between the parties.

#### **1.37 FEDERAL ACQUISITION CLAUSES INCORPORATED BY REFERENCE**

- A. The clauses of the FAR and the Department of Energy Acquisition Regulations (DEARS) set forth below are incorporated by reference. The obligations of the CM to the Owner as provided in these clauses shall be deemed the obligations of the Subcontractor to the CM. However, when these clauses include a requirement for the settlement of disputes between the parties in accordance with the "Disputes" clause, the dispute shall be disposed of in accordance with Section 1.24 of these terms and conditions. Owner Representative clauses incorporated by Reference are available from Owner Representative Procurement Web site (<http://www.ornl.gov/Procurement/docindex.htm>) Clauses referenced below shall be those in effect on the effective date of the CM's prime contract identified elsewhere.
- B. Wherever necessary to make the context of the clauses set forth below applicable, the term "Contractor" shall mean Subcontractor, the term "Contract" shall mean this subcontract, and the term "Government", "Contracting Officer" and equivalent phrases shall mean the CM, except: (1) in the phrases "Government Property", "Government-Owned Property", "Government Equipment", "Government-Furnished Property", and "Government-Owned Equipment", (2) when a right, act, authorization, or obligation can be granted or performed only by the Government or prime contract Contracting Officer or a duly authorized representative, (3) when access to proprietary financial information or other proprietary data is required, (4) when title to property is to be transferred directly to the Government, and (5) where specifically modified as noted below.
- C. Any referenced time periods for compliance with reporting and notification requirements flowed down to the Subcontractor shall be adjusted by decreasing the response time by ten days so as to allow the CM adequate time to comply at the higher tier.
- D. The FAR and DEAR may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. or from Government web sites (<http://www.arnet.gov/far/>) for FAR and (<http://pr.doe.gov/dear.html>) for DEAR.

##### Federal Acquisition Regulations

Reference	Date	Title
52.203-6	Jul 95	Restrictions on Subcontractor Sales to the Government
52.203-7	Jul 95	Anti-Kickback Procedures
52.203-12	Jun 97	Limitation on Payments to Influence Certain Federal Transactions
52.209-6	Jul 95	Protecting the Government's Interest When Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment
52.211-6	Aug 99	Brand Name or Equal
52.215-2	Jun 99	Audit and Records—Negotiation
52.215-10	Oct 97	Price Reduction for Defective Cost or Pricing Data
52.215-12	Oct 97	Subcontractor Cost or Pricing Data
52.219-8	Oct 00	Utilization of Small Business Concerns
52.219-9	Oct 00	Small Business Subcontracting Plan
52.222-4	Sep 00	Contract Work Hours and Safety Standards Act—Overtime Compensation
52.222-6	Feb 95	Davis-Bacon Act
52.222-7	Feb 88	Withholding of Funds
52.222-8	Feb 88	Payrolls and Basic Records
52.222-9	Feb 88	Apprentices and Trainees
52.222-10	Feb 88	Compliance with Copeland Act Requirements
52.222-11	Feb 88	Subcontracts (Labor Standards)
52.222-12	Feb 88	Contract Termination—Debarment

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52.222-13	Feb 88	Compliance with Davis-Bacon and Related Act Regulations
52.222-14	Feb 88	Disputes Concerning Labor Standards
52.222-15	Feb 88	Certification of Eligibility
52.222-16	Feb 88	Approval of Wage Rates
52.222-21	Feb 99	Prohibition of Segregated Facilities
52.222-23	Feb 99	Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity for Construction
52.222-26	Feb 99	Equal Opportunity
52.222-27	Feb 99	Affirmative Action Compliance Requirements for Construction
52.222-35	Apr 98	Affirmative Action for Disabled Veterans and Veterans of the Vietnam Era
52.222-36	Jun 98	Affirmative Action for Workers with Disabilities
52.222-37	Jan 99	Employment Reports on Disabled Veterans and Veterans of the Vietnam Era
52.223-5	Apr 98	Pollution Prevention and Right-to-Know Information
52.223-11	Jun 96	Ozone-Depleting Substances
52.223-12	May 95	Refrigeration Equipment and Air Conditioners
52.223-14	Oct 00	Toxic Chemical Release Reporting, except paragraph (e)
52.225-1	Feb 00	Buy American Act—Balance of Payments Program—Supplies
52.225-9	Feb 00	Buy American Act—Balance of Payments Program Construction Materials
52.225-12	May 97	Notice of Buy American Act/Balance of Payments Program Requirement – Construction Materials Under Trade Agreements
52.225-13	Jul 00	Restrictions on Certain Foreign Purchases
52.227-4	Apr 84	Patent Indemnity—Construction Contracts
52.228-2	Oct 97	Additional Bond Security
52.244-6	Oct 98	Subcontracts for Commercial Items and Commercial Components
52.247-63	Jan 97	Preference for U.S. Flag Carriers
52.247-64	Jun 00	Preference for Privately Owned U.S. Flag Commercial Vessels
52.248-3	Feb 00	Value Engineering - Construction
52.249-2	Sep 96	Termination for Convenience of the Government (Fixed-Price) Department of Energy Regulations
952-204-2	Sep 97	Security
952.226-74	Jun 97	Displaced Employee Hiring Preference
970-5204-9	Jun 96	Accounts, Records and Inspection
970-5204-59	Apr 97	Whistleblower Protection for Construction Manager
970-5204-79	Jun 97	Access to and Ownership of Records Owner Representative Clauses
Exhibit 9		Rights in Technical Data
		Hazardous Materials Reporting (adapted by your on-site requirements)

## **2. FINANCIAL**

### **2.1 SUBCONTRACTOR ACCOUNTING SYSTEM**

The Subcontractor shall employ an accounting system for this subcontract to identify, record, and invoice costs on a subcontract specific basis. Specific cost documentation for each subcontract must be readily retrievable and sufficiently identifiable to enable cross-referencing with payment vouchers.

### **2.2 BANKRUPTCY**

If Subcontractor enters into any proceeding relating to bankruptcy, it shall provide written notice via certified mail to the PM within five calendar days of initiation of the proceedings. The notification shall include the date on which the proceeding was filed, the identity and location of the court, and a listing, by CM subcontract numbers, of all CM subcontracts for which final payment has not been made.

### **2.3 AUDIT**

- A. As used in this provision, records include books, documents, accounting procedures and practices, and other data, regardless of type and regardless of whether such items are in written form, computer data, or in any other form.
- B. The Subcontractor shall maintain and the CM, Owners Representative, or the Owner, or an authorized representative of the CM, Owners Representative, or the Owner, shall have the right to examine and audit all records and other evidence sufficient to reflect properly all costs claimed to have been incurred or anticipated to be incurred (including the accuracy, completeness, and currency of any cost or pricing data) and any of the Subcontractor's directly pertinent records involving transactions related to this subcontract or a lower-tier subcontract hereunder.
- C. This right of examination shall include inspection at all reasonable times of the Subcontractor's plants, or parts of them, engaged in performance of the subcontract.

### **2.4 FEDERAL, STATE AND LOCAL TAX INCLUDING SNS TAX EXEMPTION (9/28/01)**

- A. This subcontract is exempt from State of Tennessee Sales/Use tax for the following supplies and services relating to the SNS facility (TCA 67-6-384): (1) Any property that becomes a component part of or is used exclusively in the operation or

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### **TERMS AND CONDITIONS FOR CONSTRUCTION SERVICES**

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repair of the facility; (2) Any services, materials, or items furnished or supplied to or used exclusively in the operation of the facility, and (3) Any property, services, building materials, machinery, equipment, supplies, repair parts, replacement materials, or other items used exclusively in construction, operation, or repair of the facility or its operation. This exemption applies regardless of whether the property or service is leased or purchased.

- B. Neither the Subcontractor nor lower-tier Subcontractors shall make any payments directly or indirectly on behalf of itself or to Subcontractors, at any tier, for Tennessee Sales/Use tax that is exempt under Part (a). Subcontractor shall not include amounts for payment of Tennessee Sales/Use tax that is exempt under Part (a) in the price of the subcontract. If Subcontractor receives payment under the subcontract for said exempt tax, the CM may make a reduction of corresponding amounts in the price of the subcontract, and/or may demand payment of the corresponding amounts that Subcontractor shall promptly pay. Subcontractor shall also pay any interest, penalties, and administrative charges due.
- C. The State of Tennessee and the CM, Owners Representative, and Owner, or their authorized representatives, shall have access to and the right to examine any of the Subcontractor's directly pertinent records related to the claim of tax exemption. Misuse of this exemption may subject Subcontractor to civil and criminal penalties and to termination of this subcontract. Subcontractor shall indemnify and hold the CM, Owners Representative, and Owner harmless for any consequences of Subcontractor's misuse of said exemption.
- D. Except as may be otherwise provided in this subcontract or exempted by the Part (a), the subcontract price includes all applicable Federal taxes and any State or local direct tax in effect on the subcontract date.
- E. If, after the subcontract date, the Federal Government or any State or local Government imposes or increases (or removes an exemption with respect to) any direct tax, or any tax directly applicable to the materials or components used in the manufacture or furnishing of the completed supplies or services covered by this subcontract and if the Subcontractor is obliged to and does pay or bear the burden of any such tax (and does not secure a refund thereof), the subcontract price shall be correspondingly increased. If, after the subcontract date, the Subcontractor is relieved in whole or in part from the payment or the burden of any direct tax included in the subcontract price, or any tax directly applicable to the materials or components used in the manufacture or furnishing of the completed supplies or services covered by this subcontract, the Subcontractor agrees promptly to notify the CM of such relief, and the subcontract price shall be correspondingly decreased or the amount of such relief paid over to the CM for the benefit of the Owner. Invoices or vouchers covering any increase or decrease in the subcontract price pursuant to the provisions of this paragraph shall state the amount thereof, as a separate added or deducted item, and shall identify the particular tax imposed, increased, eliminated, or decreased.
- F. If any tax or duty has been included in the subcontract price or the price as adjusted under paragraph (e) of this clause, and if the Subcontractor is entitled to a refund or drawback by reason of the export or re-export of supplies covered by this subcontract, or of materials or components used in the manufacture or furnishing of the completed supplies or services covered by this subcontract, the Subcontractor agrees that he will promptly notify the CM thereof and that the amount of any such refund or drawback obtained will be paid over to the CM for the benefit of the Owner or credited against amounts due from the CM under this subcontract.
- G. The provisions of this clause, including (G), shall be included in all lower-tier subcontracts with the lower-tier parties appropriately identified.

## **2.5 CONSENT OF SURETY**

The Subcontractor shall provide to the CM, additional security and Consent of Surety (see Exhibit 8), with the when required to protect the Owners Representative and Owner when the following conditions occur:

- A. An additional bond is obtained from other than the original surety
- B. When the value of the Change is greater than or equal to \$100,000.00
- C. The change is for new work that is outside the scope of the original contract
- D. Novation Agreement – Recognition of a successor in interest to an Owner Contract when Subcontractor transfers such interest.

## **2.6 PROGRESS PAYMENTS**

All invoices presented by the Subcontractor shall be submitted and paid in accordance with the terms and conditions of the subcontract. In the event specific invoices include charges for items that do not comply with the requirements of this subcontract, the CM may refuse payments for said charges. The CM shall not pay finance charges or interest to the Subcontractor.

### **TERMS OF PAYMENT:**

- A. **Payment:** Subject to the additional terms set forth herein, Subcontractor shall submit a progress payment request to the CM on or after the last working day of each month, or date agreed upon with the CM, for work which meets the standards of quality established under the subcontract completed during the month. All payment requests must be approved by the CM prior to payment. Ninety percent of the work satisfactorily completed each month is payable thirty days after receipt of the Subcontractor's approved request, the remaining ten percent will be held by the CM as retainage. Along with each request for progress payment, the Subcontractor shall have two copies of the waiver of lien form and partial release forms (see Exhibits 9 & 10) respectively, properly completed and signed by an officer of the Subcontractor and include the certification stating the following, or payment shall not be made:

*I hereby certify, to the best of my knowledge and belief, that: (1) the amounts requested are only for performance in accordance with the specifications and the terms and conditions of the subcontract, (2) payments to lower-tier Subcontractors and suppliers have been made from previous payments and payment will be made within ten days from the proceeds of this payment, (3) the amount requested does not contain any amounts the Subcontractor*

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*intends to withhold or retain from a lower-tier Subcontractor, and (4) no claim or dispute has arisen since the last request for payment that might involve additional payments from the CM for which written notice has not been given to the CM.*

In addition, the final payment request will also be supported by the attached final release document (See Exhibit 11). Any request submitted by Subcontractor without the completed waiver of lien form, certification mentioned in A., and/or the final release form will be rejected. The waiver of lien and final release must be signed by an owner, principal partner, or authorized officer of the Subcontractor.

- B. Final payment of the ten percent retention will be due thirty days after completion of Subcontractor's work and final acceptance by the CM, provided Subcontractor shall have delivered to CM a certificate and release in form and substance satisfactory to CM to the effect that the subcontract has been completely performed and that there are no unsatisfied or undischarged claims, demands, losses, liens, attachments or encumbrances arising out of the subcontract, and a certified mail letter from Subcontractor's surety(ies), if any, allowing payment, which letter must be signed by a designated power of attorney representing the Subcontractor's bonding company(ies), in the format set forth in the Consent of Surety Company to Final Payment document (see Exhibit 12, PROC Form 1016). It is specifically agreed that payment by CM shall not constitute a waiver of any of CM's rights under the subcontract documents nor constitute or imply acceptance by CM, Owners Representative, or Owner of any portion of Subcontractor's work. No amount of the subcontract lump sum shall be considered due and payable until all conditions of the subcontract documents, including but not limited to these paragraphs A through C are satisfied.
- C. The Subcontractor warrants and guarantees that title to all work, materials and equipment covered by an application for payment, whether incorporated in the project or not, will pass to CM upon receipt of such payment to the Subcontractor, free and clear of all liens, claims, security interests or encumbrances, and that no work, materials or equipment covered by an application for payment will have been acquired by the Subcontractor, or by any other person performing the Work at the site or furnishing materials and equipment for the project, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Subcontractor. Nothing in the foregoing clause shall relive the Subcontractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work.
- D. Billing Format: All payment requests submitted by Subcontractor shall show amounts for materials and labor as separate items, and use the attached "Application and Certificate for Payment" for payment applications. Each application for payment shall be based upon the most recent schedule of values submitted by the Subcontractor in accordance with subcontract documents. The schedule of values shall allocate the entire subcontract lump sum among the various portions of the Subcontractor's work and be prepared in such form and supported by such data to substantiate its accuracy as the CM may require. This schedule, unless objected to by the CM, shall be used as a basis for reviewing the Subcontractor's applications for payment. Applications for payment submitted by the Subcontractor shall indicate the percentage of completion of each portion of the Subcontractor's work as of the end of the period covered by the application for payment. The estimated percentage completion of each portion of the Subcontractor's work in the schedule of values is to be determined by the CM. Copies of current month's CMCIP Form III (Exhibit 4) must be submitted with payment requests. The Subcontractor's requests for progress payments must be correctly prepared and submitted to the CM by or before the 25<sup>th</sup> of EACH month during the construction performance period. CM's determination is final and binding on Subcontractor.
- The amount of each progress payment shall be computed as follows:
- (1) Take that portion of the subcontract lump sum properly allocable to completed work as determined by multiplying the percentage completion of each portion of the Subcontractor's work by the share of the total subcontract lump sum allocated to that portion of the Subcontractor's work in the schedule of values, less that percentage actually retained, if any, from payments to the Subcontractor on account of the Work of the Subcontractor. Pending final determination of cost to the CM of changes in the work that have been properly authorized by a written change order, amounts not in dispute may be included to the same extent provided in the prime contract, even though the subcontract lump sum has not yet been adjusted;
  - (2) Add that portion of the subcontract lump sum properly allocable to materials or equipment not incorporated into the work but delivered and suitably stored at the site, or at some other location agreed upon in writing by the CM, Owners Representative or Owner, such payments shall be conditioned upon submission by the Subcontractor of bills of sale or such other procedures satisfactory to the CM to establish the Owners title to such material or equipment or other wise protect Owner's interest, including applicable insurance.
  - (3) Subtract the aggregate of previous payments made by the CM; and
  - (4) Subtract amounts, if any, which are related to work of the Subcontractor for which the CM has withheld or nullified, in whole or in part, for a cause that is the fault of the Subcontractor.
- E. Billing Address: Subcontractor shall submit original and three copies of its payment request with supporting documents to the DPJM at the address set forth on the Solicitation, Offer, and Subcontract Award form (see Section A).
- F. Payment Request Meeting: Prior to submission of a payment request, the Subcontractor representative will meet with the CM's field representative to agree on the progress made, amount to be invoiced, and any other payment related issues.
- G. Payment Withheld
- (1) The CM may decline to approve an application for payment and may withhold payment in whole or in part, to the extent necessarily reasonable to protect the interests of the Owner, Owners Representative and CM. The CM may also decline to approve any applications for payment or, because of subsequently discovered evidence of subsequent inspections which may nullify the whole or any part of any verification of payment previously issued, to such extent as may be necessary in the CM's opinion to protect the Owner, Owners Representative and CM from:

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- i. Defective Work not remedied;
- ii. Third party claims filed or reasonable evidence indicating probable filing of such claims.
- iii. Failure of the Subcontractor to make payments properly to employees or sub-tiers for labor, materials or equipment, for the unpaid balance of the subcontract sum;
- iv. Unsatisfactory prosecution of the Work by the Subcontractor.

In the event the CM or CM's surety receives notice of unpaid labor or materials relating to Subcontractor's Work, the CM may withhold payments in amounts sufficient to protect the CM and its surety from claims for unpaid work or materials.

(2) When the bases for withholding payments has been removed, payment shall be made for amounts withheld.

#### **H. Substantial Completion and Final Payment**

(1) When the CM determines that the Work or a designated portion thereof is approximately 90% complete, the Subcontractor shall prepare for submission to the CM's representative a list of items (Punch List) to be completed or corrected. The CM representative will review such list and make modifications required to complete the Work. The failure to include any items on such list does not alter the responsibility of the Subcontractor to complete all Work in accordance with the subcontract documents. When the CM's representative on the basis of an inspection determines that the Work is substantially complete, the representative shall establish the Date of Substantial Completion, shall state the responsibilities of the Subcontractor and shall fix the time within which the Subcontractor shall complete the items listed therein and forward such documentation to the CM. If the Subcontractor does not complete all the items listed on the Punch List within the fixed time, CM shall have the right to withhold and use the necessary funds in addition to the retainage, to have such items completed by a third party or CM. Subcontractor shall bear any additional costs beyond the retainage amount necessary to complete the Punch List.

(2) Upon receipt of written notice that the Work is ready for final inspections and acceptance and upon receipt of a final application for payment and reproducible "record" drawings and all other necessary construction documents, CM will promptly make such inspection and when finding the Work acceptable under the subcontract documents and the subcontract fully performed including completion or correction of the items contained on the Punch List, the representative will promptly approve final payment. After final inspection and acceptance of the Work, final payment shall be made in accordance with the Payment Clause referred to in the subcontract.

(3) Neither the final payment nor the remaining retained percentage shall become due until the Subcontractor submits to the CM:

- i. A release of all claims against the Owner, Owner Representative or CM arising under and by virtue of this subcontract other than such claims, if any, as may be specifically expected by the CM.
- ii. An affidavit that all payrolls, bills for materials and equipment and other indebtedness connected with the work for which Owner, Owners Representative, CM or its property might in any way be responsible, have been paid or otherwise satisfied.
- iii. If required by the CM other data establishing payment or satisfaction of any such obligations such as receipts, releases and waivers or liens or any other claims arising out of the subcontract, to the extent and in such form as may be designated by the CM.

The acceptance of final payment shall constitute a waiver of all claims by the Subcontractor and the sub-tiers for the Work.

## **3. INDUSTRIAL RELATIONS**

### **3.1 LABOR**

A. Subcontractor shall comply with and be bound by any labor agreements applicable to the Work to be performed under the Subcontract and which are set forth in the Subcontract Documents.

B. General:

(1) Whenever Subcontractor has knowledge that any actual or potential labor dispute is delaying or threatening to delay the timely performance of the Work, Subcontractor shall immediately give written notice thereof, with relevant information, to CM. Subcontractor agrees that all personnel employed by Subcontractor at the Project site shall be in harmony with and be compatible with all other personnel on the Project. Failure of Subcontractor to comply strictly with the terms of this labor harmony clause shall constitute cause for termination of the Subcontract pursuant to the Term and Conditions provision titled "Cancellation and Default".

(2) Subcontractor agrees that in the event of any strike, lockout, picketing, walkout, or other work stoppage or slow down caused by any labor dispute at the Project site involving Subcontractor, its employees, agents, contractors, or sub-Subcontractors or others (collectively referred to as "Labor Dispute"), Subcontractor will make every reasonable effort to take such action as is requested by CM to facilitate CM's ability to perform CM's services including, without limitation, the use of any reserved gates that may be established for Subcontractor's use. Subcontractor agrees that in the event of any such Labor Dispute, Subcontractor will continue to perform the Work without interruption or delay. In the event Subcontractor fails to continue the Work without interruption or delay or fails to otherwise comply with the terms and conditions of this paragraph, CM may, in addition to all other rights it has under this Subcontract or at law, terminate this Subcontract for cause pursuant to the Terms and Conditions provision titled "Cancellation and Default".

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- (3) In the event of a Labor Dispute, whether or not Subcontractor furnishes notice, CM may require assurances from Subcontractor (as CM deems necessary) to ensure that Subcontractor will complete the Work on schedule and without interruption or delay. In the event Subcontractor fails to provide such assurances or otherwise fails to comply with the provisions of this subparagraph, CM may, in addition to all other rights it has under this Subcontract or at law, terminate this Subcontract for cause pursuant to the Term and Conditions provision titled "Cancellation and Default".
- C. Subcontractor warrants that it will manage its employees and will utilize an adequate number of properly skilled workers and means in such a manner that the Work will be prosecuted in strict accordance with the Subcontract. Subcontractor will not interfere with the work of CM or others working on the Project. In the event of a slowdown, work stoppage or strike, including any refusal-to-work-in-sympathy-with-others, by Subcontractor's employees or any employees of its sub-Subcontractors or material men, Subcontractor shall take every step, including, but not limited to, legal action to ensure that the Work is prosecuted without interruption or delay. Also, Subcontractor shall take all available steps to cause deliveries to be made in accordance with the terms of the Subcontract even though such deliveries necessitate crossing a picket line. Any time lost due to slowdown, work stoppages, strikes or failure to make deliveries, shall not entitle Subcontractor to an adjustment to the Subcontract Price or Subcontract Schedule.
- D. Subcontractor agrees to reimburse CM in full for any costs or expenses, including, without limitation, attorney's fees, incurred by CM in connection with, arising out of or incident to any Labor Dispute. Subcontractor understands and agrees that a Labor Dispute shall not constitute an Excusable Delay (defined in Terms and Conditions provision titled "Delivery or Performance Schedule/Liquidated Damages).
- E. Subcontractor shall accept full and exclusive liability for the payment of any and all taxes and contributions for unemployment insurance, old age retirement benefits and life pensions and annuities which may now or hereafter be imposed by the United States or any State, whether measured by the wages, salaries or remuneration paid to persons employed by Subcontractor or otherwise, for the Work required to be performed hereunder. Subcontractor shall comply with all Federal and State laws on such subjects, and all rules and regulations promulgated thereunder, and shall maintain suitable forms, books, and records and save CM, Owners Representative and Owner harmless from the payment of any and all such taxes, excises, assessments or other charges levied by any governmental authority on or because of the Work to be done hereunder, or any equipment, supplies or materials used in the performance of the Work.

### **3.2 LABOR STANDARDS PROVISIONS**

- A. This subcontract is subject to labor standard provisions as incorporated herein by reference. FAR clauses governing labor performance criteria are listed under paragraph 1.39 of these Terms and Conditions (refer: 52.222-xx). The full text of these clauses may be found at the following Internet website: [www.arnet.gov/far/](http://www.arnet.gov/far/).
- B. It is the Subcontractor's responsibility to fully understand and comply with the requirements of clauses specified in (a) above. The Subcontractor is advised that failure to ensure accurate and timely submission of certified payrolls complete with certifications thereon as required by FAR 52.222-8, will be cause for the withholding of payments until the payroll deficiency is corrected to the satisfaction of the CM. Certified payrolls of the Subcontractor are to be submitted directly to the PM.

### **3.3 CONSTRUCTION LABOR AGREEMENT**

- A. The project (and all Subcontractors thereto) is legally bound to operate within the requirements of the local Construction Labor Agreement (CLA). The Subcontractor and all of its lower-tier Subcontractors will be required to become signatory to the CLA, signed between the Signatory Employers and the Signatory Unions of the Knoxville Building and Construction Trades Council, AFL-CIO. The applicable CLA is the version prepared in support of the SNS Project, and is accompanied by the applicable labor wage schedule for this subcontract. The CLA is provided in Exhibit 13, of the subcontract documents.
- B. The Subcontractor is required to have made economic considerations with regard to the future annual increase of Maintenance and Benefits adjustment contained in the CLA on or about May 1<sup>st</sup> of each year. Such considerations are part of the subcontract pricing indicated in the price schedule.

### **3.4 OFFICE OF FEDERAL CONTRACT COMPLIANCE PROGRAM (OFCCP)**

- A. The U.S. Department of Labor (DOL) has determined the SNS Project to be a Mega Construction Project, in that (1) it is a federally funded project, (2) it has duration of greater than two years, and (3) it is anticipated to have a significant impact upon the economy. As a result, the OFCCP monitors such projects for the utilization of minorities, women, Vietnam Era Veterans, and individuals with disabilities in the labor force. An Oversight Committee has been established for the SNS Project to assist Owner and its contractors and all lower-tier Subcontractors in meeting OFCCP requirements. Assistance will consist of furnishing advice to the CM, and its Subcontractors on ways to maximize good faith efforts and goal attainment for minorities, women, veterans, and individuals with disabilities. Special emphasis will be placed on employee retention and the use of pre-apprenticeship and apprenticeship programs. The Subcontractor will ultimately be held responsible for achievement of the goals. The Subcontractor is hereby directed to FAR 52.222-23, "Notice Requirements for Affirmative Action To Ensure Equal Employment Opportunity for Construction," the full context of this FAR clause can be found at [www.arnet.gov/far/](http://www.arnet.gov/far/). The Subcontractor's written notice shall be issued to the DOL as indicated below within ten working days following award of any construction subcontract in excess of \$10,000.00 at any tier for construction work under this subcontract. The notification shall list the:
- (1) Name, address, and telephone number of the Subcontractor;
  - (2) Employer's identification number of the Subcontractor;
  - (3) Estimated dollar amount of the subcontract;



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- (4) Estimated starting and completion dates of the subcontract; and
  - (5) Geographical area in which the subcontract is to be performed.
- B. The Subcontractor is required to flow-down this reporting requirement to all lower-tier subcontracts where an award for a construction subcontract is greater than \$10,000.00 and provide notification of such lower-tier construction subcontract awards to the OFCCP at the following addresses:

U. S. Department of Labor  
Office of Federal Contract Compliance Programs  
ATTN: C. Clark  
Sam Nunn Atlanta Federal Center  
61 Forsyth Street S.W., Room 7B  
Atlanta, Georgia 30303-8609

U. S. Department of Labor  
Office of Federal Contract Compliance Programs  
ATTN: R. Brown  
1321 Murfreesboro RD Suite 301  
Nashville, Tennessee 37217

- C. The Subcontractor is to provide copies of such notices to the CM. The Subcontractor is required to obtain and report the utilization of all labor categories named herein by gender and by subcontract for all subcontracts containing this clause. The Subcontractor is required to submit monthly reports directly to the PM by the tenth of each month. A sample of the report format to be used by the Subcontractor and each lower-tier Subcontractor is contained in Exhibit 14, of the subcontract documents.

The goals are as follows:

Minorities:	6.8%
Women:	6.9%
Veterans:	Good Faith Efforts
Individuals with Disabilities:	Good Faith Efforts

## **4. SAFETY AND HEALTH**

### **4.1 TRANSPORTATION OF HAZARDOUS WASTE AND CONTAMINATED MATERIALS**

In the performance of the subcontract, the Subcontractor may be required to transport hazardous waste and/or contaminated materials to off-site treatment or disposal facilities. When such transportation is stipulated, the Subcontractor shall comply with the following requirements.

- A. The Subcontractor shall ensure that only trucks certified by the manufacturer as meeting the Department of Transportation (DOT) 311 and 312 specifications are used to transport bulked liquid waste.
- B. The Subcontractor shall ensure that all waste materials transported to any off-site disposal location shall have waste manifests signed by the operator of the disposal location.
- C. The Subcontractor shall ensure that all waste materials transported on public roads have bills of lading accompanying the shipments in addition to waste manifests.
- D. The Subcontractor shall ensure that all waste transport vehicle operators comply with the minimum health and safety training requirements specified by EPA, DOT, and the Occupational Safety and Health Administration (OSHA) for hazardous waste vehicle operators.
- E. The Subcontractor shall obtain letters of commitment from waste haulers and from treatment, disposal, or recovery facility owners/operators to haul and accept waste shipments. The letters shall indicate all agreements and commitments for handling and acceptance of the specified materials as described in each subcontract.

### **4.2 ENVIRONMENT, SAFETY, AND HEALTH PLAN**

- A. The SNS Project approved AE/CM Environment, Safety, and Health (ES&H) Plan is provided (see Exhibit 15) as a guide in developing the Subcontractor's Environment, Health and Safety Plan for this subcontract. The Subcontractor is required to develop and submit its own project specific Environment, Safety, and Health Plan that shall be reviewed and approved by the CM prior to the Subcontractor's receipt of a Notice to Proceed and mobilization to the job site.
- B. The Subcontractor shall comply with the requirements of the ES&H Plan and provide reporting for all Environment, Health and Safety requirements identified in this subcontract. Non-compliance with any Environment, Health and Safety requirement may be grounds for subcontract termination.
- C. Subcontractor shall perform this Agreement in a manner that ensures adequate protection for workers, the public, and the environment, and shall be accountable for actions of itself and its lower-tier Subcontractors, agents and employees. Subcontractor shall exercise a degree of care commensurate with the work and the associated hazards. Subcontractor shall ensure that management of environment, ES&H functions and activities is an integral and visible part of Subcontractor's work planning and execution process. In the event that Subcontractor fails to comply with this Agreement, CM may, without prejudice to any other legal or contractual rights, issue an order stopping all or any part of the work; or terminate the

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subcontract in its entirety; thereafter a start order for resumption of work may be issued at CM's discretion; in the case of a termination of the subcontract, an order for the resumption of work will not be issued. Subcontractor shall make no claim for an extension of time or for compensation or damages by reason of or in connection with such work stoppage.

- D. Subcontractor shall be responsible for initiating, maintaining, and supervising all environmental, safety and health precautions and programs in connection with the work on the project, and in accordance with all CMCIP requirements and the ES&H Plan. Subcontractor shall take all necessary precautions for the safety of, and shall provide all necessary protection to prevent damage, injury, or loss to (1) all employees involved with the work and other persons who may be affected thereby, (2) all work and materials and equipment to be incorporated therein, and (3) other property at the project site or adjacent thereto. Where consideration of Subcontractor's (or any lower tier Subcontractor) labor, equipment, or safety is involved, Subcontractor is solely responsible for all decisions and CM, the Owners Representative and the Owner shall not incur any liability because of Subcontractor's decisions.
- E. Subcontractor assumes all responsibility and shall be liable for loss of or damage to any property at the project site or adjacent thereto caused in whole or in part by Subcontractor, any low tier Subcontractor, anyone directly or indirectly employed by either Subcontractor or any lower tier Subcontractor or anyone for whose acts Subcontractor or any lower tier Subcontractor may be liable, even if such loss or damage is caused in part by the negligence of any indemnities up to first dollar sum as referenced in Section 9.2 (i) and (j).
- F. If Subcontractor is performing any of the work onsite, which is defined as ORNL, or any other Owner Representative or Owner owned or leased facility, Subcontractor shall comply with (1) through (6) below.
- (1) Subcontractor shall manage and perform work in accordance with a documented Safety Management System (SMS). In fulfilling this requirement, Subcontractor shall (A) comply with the SNS Integrated Safety Management System (ISMS) program by meeting the ES&H requirements of the subcontract including those specified in the Summary of Work and the specifications, if any, (B) manage and perform work in accordance with a documented Safety Management Plan consistent with AE/CM ES&H Plan found in Exhibit 15, which has been submitted to CM for review and approval, or (C) manage and perform work in accordance with a documented Safety Management Plan consistent with AE/CM ES&H Plan found in Exhibit 15 which has been approved by Owner and submitted to CM for review and approval. Until approval by CM is received, Subcontractor shall comply with the SNS ISMS program.
- (2) Subcontractor shall be able to demonstrate through documentation and work practices that its performance of work under this subcontract is in accordance with the Summary of Work and the subcontract specifications, and that its SMS:
- i. Defines the scope of work;
  - ii. Identifies and analyzes hazards associated with the work;
  - iii. Develops and implements hazard controls;
  - iv. Performs work within controls; and,
  - v. Provides feedback to CM and Subcontractor's employees on adequacy of controls and continues to improve safety management.
- (3) If CM has notified Seller of a noncompliance with applicable ES&H regulations or requirements pursuant to (f) below, and Subcontractor fails or refuses to immediately correct the ES&H violation, CM may perform, or cause to be performed, the necessary corrective action and unilaterally charge the Subcontractor for the cost thereof. Such charges will be deducted from payments otherwise due the Subcontractor.
- (4) CM, acting on behalf of Owner, will maintain individual occupational radiation exposure records as required for Subcontractor's employees for periods they are employed for work under this Agreement. Should Subcontractor choose, in addition, to maintain its own individual occupational radiation exposure records during the performance of work under this Agreement, Subcontractor's records shall be subject to inspection by CM and/or Owner and shall be preserved by Subcontractor until disposal is authorized by CM, or at the option of Subcontractor, delivered to CM upon completion or termination of the Agreement. If Subcontractor exercises the forgoing option, title to such records shall vest in Owner upon delivery.
- (5) Reports.
- i. The Subcontractor shall report to the CM within two working days of learning of an occupational injury or illness that is recordable under 29 CFR 1904.12(c). Reports shall be made on DOE Form 5484.3, "Individual Accident/Incident Report," which shall be provided by the CM.
  - ii. Before the fifth day of each month the Subcontractor shall report to the CM the number of hours worked onsite the previous month. Reported hours should not include paid, non-work time such as holidays, vacation, or sick leave. Forms for this report will be provided by the CM.
  - iii. The Subcontractor shall forward reports from lower-tier Subcontractors to the CM.
- (6) Subcontractor may not bring to or use onsite any hoisting and rigging equipment that contains any SAE Grades 5,8, or 8.2 fasteners or ASTM Grade A325 fasteners identified on the "DOE Suspect Bolt Headmark List" which can be found at CM's Procurement web site (see Exhibit 16). For purposes of this paragraph, "hoisting and rigging equipment" means: (I) overhead and gantry cranes as defined in 29 CFR 1910.179; (ii) crawler, locomotive, and truck cranes as defined in 29 CFR 1910.180; derricks, as defined in 29 CFR 1910.181; and associated lifting devices such as slings, lifting fixtures, and lifting attachments.
- G. If work is going to be performed at the Subcontractor's facility, Subcontractor shall perform work in accordance with its own ES&H requirements and any ES&H requirements included in this subcontract.

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- H. If work is going to be performed at a third-party facility, which is a facility not owned or leased by Owner, CM or Subcontractor, the Subcontractor shall follow the ES&H requirements pertaining to the third-party facility and any ES&H requirements of this subcontract.
- I. If Subcontractor is performing any of this work outdoors at a location(s) not owned or leased by Owner, CM, or Subcontractor, such work shall be considered "field work." Subcontractor shall follow the ES&H requirements pertaining to the fieldwork location(s). Subcontractor shall also perform work in accordance with the ES&H requirements of this subcontract.
- J. CM shall notify Subcontractor by a written Notice of Noncompliance of any observed noncompliance with applicable ES&H regulations or requirements including specified requirements of a documented SMS as referenced in (b)(1) above. Subcontractor shall immediately take appropriate corrective action. Subcontractor shall advise CM in writing, within five (5) working days of the corrective action taken.
- K. Subcontractor shall include this clause in all of its subcontracts, at any tier, involving the performance of this Agreement. However, such provision in the subcontracts shall not relieve Subcontractor of its obligation to assure compliance with the provisions of this clause for all aspects of the work.
- L. Contractor shall immediately advise CM and CMCIP Administrator of any personal injury or property damage occurring on or about the project site, and shall provide such additional details and documentation concerning the same as required by the CMCIP and as reasonably requested by CM.

#### **4.3 FIRE PREVENTION**

The Subcontractor shall ensure that all employees know how to turn on a fire alarm. The Subcontractor shall observe all requirements for handling and storage of combustible supplies, materials, waste, and trash. Subcontractor employees operating critical equipment shall be trained to properly respond during a fire alarm or fire in accordance with owner instruction procedures. The Subcontractor shall provide a fireproof storage area for all hard copy and electronic data.

#### **4.4 PROTECTION OF PERSONS AND PROPERTY AND OSHA INFORMATION**

- A. Safety Precautions and Programs: The Subcontractor is responsible for protecting its employees from risk of death, injury, or bodily harm arising out of or in any way connected with the Work. Subcontractor shall initiate, maintain, supervise, and is responsible for all safety precautions and programs in connection with the Work. Subcontractor will provide CM upon request a copy of Subcontractor's safety program. CM hereby disclaims any responsibility or liability for the adequacy or completeness of Subcontractor's safety program.
- B. Safety of Persons and Property
  - (1) The Subcontractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to:
    - i. All employees on the Work and all other persons who may be affected thereby;
    - ii. All the Work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Subcontractor or any of its sub-tiers; and
  - (2) The Subcontractor shall comply with all applicable laws, ordinances; rules, regulations and lawful orders of any public authority having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. The Subcontractor shall erect and maintain, as required by existing conditions and progress of the work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards and promulgating safety regulations. When the use or storage of hazardous materials or equipment is necessary for the execution of the work, the Subcontractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel as approved by the CM's Safety representative in advance of the start of such work.
  - (3) All damage or loss to any property referred to in Subparagraph B.1 and B.2 caused in whole or in part by the Subcontractor, any or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, shall be remedied by the Subcontractor.
  - (4) Hazardous substances, of which an employer is required by law to notify its employees of their use, shall not be used at the site without prior written approval of CM. If hazardous substances of a type of which an employer is required by law to notify its employees are being used on the site by Subcontractor, sub-Subcontractors or anyone directly or indirectly employed by them, Subcontractor shall, prior to exposure of any employees on the site to such substance, give written notice of the chemical composition thereof to CM in sufficient detail and time to permit compliance with such laws by CM, other Subcontractors and other employers on the site.
  - (5) Subcontractor shall not use asbestos or polychlorinated biphenyl or materials containing those substances in the performance of the Work except with prior written approval of CM and Owner. In the event Subcontractor encounters on the site material reasonably believed to be asbestos or polychlorinated biphenyl (PCB) which has not been rendered harmless, Subcontractor shall immediately stop Work in the area affected and report the condition to CM in writing. The Work in the affected area shall resume in the absence of asbestos or polychlorinated biphenyl (PCB), or when it has been rendered harmless, by written agreement of CM and Subcontractor.
  - (6) The Subcontractor shall be solely responsible for and shall hold the CM, Owners Representative and Owner free and harmless from any and all claims, demands, cause of action, loss, cost damage, and expense including attorney's fees arising out of or in connection with injuries (including death) or damages to any and all persons, employees, and/or property in any way sustained or alleged to have been sustained in connection with or by reason of the performance of the Work by Subcontractor, its Sub-tiers, agents or employees.

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- C. **Emergencies:** In any emergency affecting the safety of persons or property, the Subcontractor shall act, at his discretion, to prevent threatened damage, injury or loss. Any additional compensation or extension of time claimed by the Subcontractor on account of emergency work shall be determined as provided in the Changes clause.
- D. **Use of CM Equipment:** Subcontractor, its employees and sub-Subcontractors shall not use CM's equipment without CM's written permission. If CM grants permission for Subcontractor or any of its employees, or sub-Subcontractors to utilize any machinery, equipment, tools, scaffolding, hoists, lifts or similar items owned, leased, or under the control of CM or utilizes the services of CM's employees, Subcontractor shall as consideration for using such items or services, defend, indemnify, and hold the CM, Owners Representative and Owner harmless for any damage, loss, cost, or expense, including third party claims, which may arise out of or in connection with such use, whether or not such damages arise in whole or in part from the acts or omissions (including joint, concurrent, active or passive, or sole and exclusive negligence), breach of subcontract, strict liability, or otherwise of the CM, Owners Representative and Owner.
- E. **OSHA Information:** Subcontractor shall immediately contact CM when Subcontractor becomes aware of an Occupational Safety and Health Administration (OSHA) request for an inspection, conference, communication or any other information concerning the Subcontractor's Work or the Project. Unless OSHA appears with a facially valid administrative search warrant duly issued by a court of competent jurisdiction, Subcontractor will not comply with the agency's request until CM has been notified and acquiesced to such request by the agency. CM, Owners representative or Owner, at its sole option, may require an appropriate warrant to be issued and served on the Subcontractor prior to Subcontractor complying with a request from OSHA for access to the Project. Subcontractor will not enter into any Project related safety settlement or agreement with any federal, state, or local governmental agency until CM receives notice and approves the agreement between the Subcontractor and the agency. CM's notice and approvals or disapproval, if any, of Subcontractor complying with the agency's request does not absolve or alter Subcontractor of its duties and responsibilities under any statute, regulation, citation or ordinance or this Subcontract.
- F. **CM's Review of Subcontractor's Safety Programs:** CM's review of Subcontractor's safety programs shall not in any way extend to control of the means and methods of the Subcontractor's Work, nor be construed to have direct control over or charge of the acts, errors or omissions pertaining to the safety programs of Subcontractor, its agents or employees. CM's duties with regard to Subcontractor's safety program review may include an initial, non-exhaustive review of the Subcontractor's safety programs as compared to the Owner's requirements for a written program. The Subcontractor shall remain solely responsible for day-to-day safety programs, procedures and practices. CM and Subcontractor agree that CM is not a "controlling employer" as that term has been interpreted under the Occupational Safety and Health Act (the "Act"). Moreover, to the extent CM is cited for a violation of the Act as a result of an action or inaction by the Subcontractor, Subcontractor agrees to defend, indemnify and hold CM harmless in any action OSHA may bring against the CM. Subcontractor will not confess judgment or liability, or sign any agreement to settle an OSHA citation issued to Subcontractor without CM's written approval.
- G. **Other Safety Requirements:** The requirements of this Section of the subcontract are in addition to health and safety requirements stated elsewhere in the subcontract documents.

## **5. SECURITY**

### **5.1 SECURITY REQUIREMENTS**

- A. The Subcontractor shall comply with all CM, Owners Representative, or Owner security requirements. Upon request, the Subcontractor shall submit the name and address of each employee hired for work on this subcontract and shall cause to be filled out questionnaires and other forms as may be required for security.
- B. Neither the Subcontractor nor any of its employees shall disclose or cause to be disseminated any information concerning the operations of the CM, Owners Representative, or Owner which could result in or increase the likelihood or the possibility of a breach of the CM, Owners Representative or Owner's security or interrupt the continuity of its operations.
- C. All inquiries, comments, or complaints arising from any matter observed, experienced, or learned as a result of or in connection with the performance of this subcontract, the resolution of which may require the dissemination of official information, will be directed to the CM.
- D. Deviations from or violations of any of the provisions of this paragraph will subject the Subcontractor to immediate termination for default.

### **5.2 PASSES AND BADGES**

- A. All Subcontractor employees shall obtain the required employee and vehicle passes. The Subcontractor shall, prior to the start of the subcontract, submit to the CM an estimate of the number of personnel expected to be utilized at any one time on the subcontract. The Subcontractor shall also provide the CM the names and valid driver's license numbers, vehicle registrations and proof of insurance (for vehicles utilized inside the construction site area), for all employees that will be on site. The CM will issue badges, without charge to the Subcontractor. Failure to return employee badges to CM upon completion of work shall result in the Subcontractor being back charged at a rate of \$25 per badge.
- B. No employee or representative of the Subcontractor will be admitted to the site of work unless they are a citizen of the United States, or, if an alien, employment within the United States is legal.

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#### **5.3 DRUG AND ALCOHOL POLICY**

- A. Subcontractor agrees to advise its employees and employees of its Subcontractors and agents that it is the policy of the CM that (1) the manufacture, dispensation or sale, offer for sale, purchase, use, transfer, or possession of illegal drugs on CM premises is prohibited; (2) employees, while on the CM's premises, are prohibited from being under the influence of alcohol ("Under the Influence" means the employee is affected by alcohol in any detectable manner); (3) entry onto the CM's premises constitutes consent to an inspection of the employee and his or her vehicle as personal effects while entering, on, or leaving premises; (4) any employee who is found in violation of this policy or who refuses to permit an inspection may be removed or barred from the CM's premises at the discretion of the CM. As used herein, "CM's premises" means the CM's property, leased or otherwise, including Owner Representative and Owner owned project site locations in which the CM business is being conducted, and CM owned or rented vehicles and/or equipment is being operated.
- B. Regarding employees that work on CM premises, the Subcontractor agrees to implement a Drug and Alcohol Policy no less stringent than the CM policy.
- C. In furtherance to the CM's ES&H Plan, the following is offered as clarification to the 'Employee Drug Testing Policy' and supercedes any statements to the contrary:
- D. All Subcontractor employees (of any tier) will be required to report for drug testing at Scientific and Technical Resources, Inc., 111D Union Valley Road, Oak Ridge, Tennessee 37830, phone number (865) 481-6088. The Subcontractor employee (of any tier) must have their referral from the Knoxville Building and Construction Trades Council with them at the time they report for drug testing or they will not be allowed to drug test. The Subcontractors will pay approximately sixty (\$60.00) dollars for each pre-employment drug test, there are two (2) tests required. If a subcontract employee (of any tier) has a presumptive positive test the individual will not be allowed to access the site until the verification of the initial test is received. It is anticipated that the verification process will take forty-eight hours. Any subcontract employee (of any tier) that receives a confirmed positive test will not be allowed access to the Owners project site as an employee of any Subcontractor (of any tier) for a period of one year after the confirmed positive test. This time period applies to a confirmed positive test for any reason (pre-employment, random, reasonable cause, post accident/post incident, etc.).
- E. After subcontract employee(s) (of any tier) have finished the above drug test, they are to report to the CM's safety trailer for job site safety orientation and badging. Individual drug test results will be received from the testing facility while the employees are in this orientation. Subcontract employees (of any tier) that receive a presumptive positive test will not be allowed to receive an Owners site access badge. Subcontract employees (of any tier) that receive a negative drug test result and successfully complete the job site safety orientation will be issued an Owners site access badge and immediately allowed to report to work. The Subcontractor should allow four hours per employee for this entire process (from drug screening to badging).
- F. Subcontractor shall defend and hold the CM, Owners Representative, and the Owner harmless from any suits or claims by its employees relating to enforcement of this provision.

## **6. QUALITY ASSURANCE**

### **6.1 COUNTERFEIT AND SUSPECT MATERIALS**

The Subcontractor shall perform receiving inspections to verify that visually distinguishable characteristics of items received, installed, or used in the installation of materials conform to requirements established elsewhere in this subcontract, but primarily in drawings, specifications, and other design documents. The CM, Owners Representative or Owner does not permit suspect or counterfeit items to be present within the boundaries of its facilities and confiscates suspect or counterfeit items when they are discovered. Those materials considered counterfeit or suspect are identified within Exhibit 16, of this section. Consequently, the following Subcontractor precautions are strongly recommended:

- A. Include the substance of this article in all purchasing agreements, lower-tier subcontracts, and rental or leasing agreements.
- B. Assure adequate controls are in place to prevent delivery of suspect or counterfeit items to the site. (Note: The Contractor certifies these controls are in place by completing the "Suspect/Counterfeit Parts Representation" which was provided in the solicitation for this subcontract.)
- C. Inspect Contractor-owned, rented, or leased equipment to confirm fasteners installed in the equipment are not marked with the suspect head-marks according to the exhibit entitled "Counterfeit/Suspect Materials."
- D. If suspect or counterfeit items are discovered during receiving or installation, the Subcontractor shall immediately segregate or tag the items to prevent further use and notify the CM. The CM will impound all suspect and counterfeit items, notify appropriate authorities of the CM, and retain custody of the items. The items will not be returned to the Subcontractor, and the Subcontractor will be required to pay the cost of replacing suspect or counterfeit items provided by the Subcontractor.

### **6.2 SUBCONTRACTOR QUALITY CONTROL**

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.
  - (1) AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM).
  - (2) ASTM D 3740: (1992) Evaluation of Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
  - (3) ASTM E 329: (1993b) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.

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- B. The quality control system shall consist of plans, procedures, and organization necessary to produce an end product, which complies with the subcontract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The Subcontractor's project superintendent will be held responsible for the quality of work on the job.

C. Quality Control Plan

(1) General: The Subcontractor shall furnish for review by CM, not later than ten days after receipt of Notice to Proceed, the Subcontractor Quality Control (SQC) Plan proposed to implement the requirements of this specification. The plan shall identify personnel, control procedures, instructions, test records, and forms to be used. The CM will consider an interim plan for the first 30 days of operation. Construction will be permitted to begin only after acceptance of the SQC Plan (including approval of the SQC Manager) or acceptance of an interim plan applicable to the particular features of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of an SQC Plan or another interim plan containing the additional features of work to be started.

(2) Content of the SQC Plan: The SQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by sub-tier Subcontractors, fabricators, suppliers, and purchasing agents:

- i. A description of the quality control organization, including a chart showing lines of authority and responsibilities including authority to stop work which does not comply with the subcontract.
- ii. The name, professional qualifications (in resume format), duties, responsibilities, and authorities of each person assigned an SQC function.
- iii. Testing and inspection plan that corresponds to the testing and inspection requirements of the specifications and any other applicable codes, requirements, or standards.
- iv. The following Subcontractor's procedures that are applicable to the work:
  - a. Shop inspection and testing of fabricated equipment.
  - b. Evaluation and pre-qualification of vendor supplied material and equipment.
  - c. Evaluation and pre-qualification of sub-tier Subcontractors.
  - d. Receiving, inspection, and storage.
  - e. In process testing and inspection.
  - f. Final testing and inspection.
  - g. Calibration of inspection, measuring, and testing equipment.
  - h. Control of non-conforming work.
  - i. Document control and reporting.

(3) Acceptance of Plan: Acceptance of the Subcontractor's plan and quality control manager is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during construction. CM reserves the right to require the Subcontractor to make changes in its SQC Plan and/or personnel.

(4) Notification of Changes: After acceptance of the SQC Plan, the Subcontractor shall notify CM in writing of any proposed changes prior to implementation. Proposed changes are subject to acceptance by CM.

D. Coordination Meeting

After the Preconstruction Conference, before start of construction, and prior to acceptance by CM of the SQC Plan, the Subcontractor shall meet with CM and discuss the Subcontractor's quality control system. The SQC Plan shall be submitted for review a minimum of five calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the SQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Subcontractor's management and control with quality assurance. Minutes of the meeting shall be prepared by the CM and signed by both the Subcontractor and the CM. The minutes shall become part of the subcontract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the SQC system or procedures that may require corrective action by the Subcontractor.

E. Quality Control Organization

The requirements for the SQC organization are a SQC System Manager who shall be at the site at all times during progress of work and with complete authority to take any action necessary to ensure compliance with the subcontract. This person shall have a minimum of ten years experience on installations of the complexity and magnitude of the type of work similar to this project, and must be employed by the prime Subcontractor. The SQC System Manager may have other assigned duties; however, he will be responsible for all matters concerning contractor quality control. The SQC System Manager shall be subject to acceptance by CM, and approval is conditioned upon satisfactory performance.

F. Submittals

Submittals shall be made as specified in Section 9.10, Submittals, Specifications, and Drawings, of this document. The SQC System Manager shall be responsible for certifying that all submittals comply with the subcontract requirements.

G. Control

(1) Subcontractor Quality Control is the means by which the Subcontractor ensures the construction, to include that of Subcontractors of any tier and suppliers, complies with requirements of the subcontract. At least three phases of control shall be conducted by the SQC System Manager for each definable feature of work as follows.

(2) Preparatory Phase: This phase shall be performed prior to beginning work on each definable feature of work and shall include:

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- i. A review of each paragraph of applicable specifications.
  - ii. A review of the subcontract drawings.
  - iii. A check to assure that all materials and/or equipment have been tested, submitted, and approved.
  - iv. Review of provisions that have been made to provide required control inspection and testing.
  - v. Examination of the work area to assure that all required preliminary work has been completed and complies with the subcontract.
  - vi. A physical examination of required materials, equipment, and sample work to assure they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
  - vii. A review of the appropriate activity hazard analysis to assure safety requirements are met.
  - viii. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.
  - ix. A check to ensure that the portion of the plan for the work to be performed has been accepted by CM.
  - x. Discussion of the initial control phase.
  - xi. CM shall be notified in writing at least 24 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the SQC System Manager and attended by the superintendent, other SQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the SQC System Manager and attached to the daily report. The Subcontractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet subcontract specifications.
- (3) Initial Phase: This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:
- i. A check of work to ensure that it is in full compliance with subcontract requirements. Review minutes of the preparatory meeting.
  - ii. Verify adequacy of controls to ensure full subcontract compliance. Verify required control inspection and testing.
  - iii. Establish level of workmanship and verify that it meets acceptable workmanship standards. Compare with required sample panels as appropriate.
  - iv. Resolve all differences.
  - v. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.
  - vi. CM shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the SQC System Manager and attached to the daily SQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.
  - vii. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.
- (4) Follow-up Phase: Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with subcontract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the SQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work, which may be affected by the deficient work. The Subcontractor shall not build upon or conceal non-conforming work.
- (5) Additional Preparatory and Initial Phases: Additional preparatory and initial phases shall be conducted on the same definable features of work if the quality of on-going work is unacceptable, if there are changes in the applicable SQC staff, onsite production supervision or work crew, if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

#### **H. Testing and Inspection by Independent Inspection and Testing Agencies**

- (1) The Subcontractor shall employ and pay independent test agencies to perform specified quality control services when so indicated in the technical specifications. Costs for these services shall be included in the subcontract price.
- (2) Qualification for Independent Inspection and Testing Agencies: Inspection and Testing agencies shall be pre-qualified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the National Institute for Certification of Engineering Technicians (NILET) which specializes in the types of inspections and tests to be performed. Each inspector shall be certified to a minimum of Level II by NILET. Each independent Inspection and Test Agency engaged on the project shall be authorized by the authorities having jurisdiction to operate in the State of Tennessee. CM reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the subcontract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.
- (3) Reporting Requirements: The Independent Inspection and Testing Agency shall submit certified written reports of each inspection, test, or similar service to the Subcontractor's quality control manager, who will forward the report to the CM. The written reports shall include, but not be limited to:
  - i. Date of issue.
  - ii. Project title and number.
  - iii. Name, address, and telephone number of testing agency.
  - iv. Dates and locations of samples and test or inspections.

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- v. Names of individuals making the inspection or test.
- vi. Designation of the work or test method.
- vii. Identification of product and Specification Section.
- viii. Complete inspection or test data.
- ix. Test results and an interpretation of test results.
- x. Ambient conditions at the time of sample taking and testing.
- xi. Comments or professional opinion as to whether inspected or tested work complies with subcontract document requirements and/or applicable codes.
- xii. Name and signature of laboratory inspector.
- xiii. Recommendations on retesting.

#### **I. General Testing Procedures**

The Subcontractor shall perform specified or required tests to verify that control measures are adequate to provide a product that conforms to subcontract requirements. Upon request, the Subcontractor shall furnish to CM duplicate samples of test specimens for possible testing by CM. Testing includes operation and/or acceptance tests when specified. The Subcontractor shall perform the following activities and record and provide the following data:

- i. Verify that testing procedures comply with subcontract requirements.
- ii. Verify that facilities and testing equipment are available and comply with testing standards.
- iii. Check test instrument calibration data against certified standards.
- iv. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
- v. Results of all tests taken, both passing and failing, will be recorded on the SQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test will be given. If approved by CM, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility will be provided directly to CM. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this subcontract.

#### **J. Completion Inspection**

(1) Pre-Final Inspection: At the completion of all work or any increment thereof established by a completion time or stated elsewhere in the specifications, the SQC System Manager shall conduct an inspection of the work and develop a "punch list" of items which do not conform to the approved drawings and specifications. Such a list of deficiencies shall be included in the SQC documentation, as required by sub-paragraph K, Documentation, below, and shall include the estimated date by which deficiencies will be corrected. Once this is accomplished, the Subcontractor shall notify CM in writing that the facility is complete and is ready for the CM's "Prefinal" inspection. CM will perform this inspection to verify the facility is complete and ready to be occupied. A CM "Prefinal Punch List" will be developed because of this inspection. The SQC System Manager shall ensure that all items on this list have been corrected and so notify CM so that a "Final" inspection with the customer can be scheduled. Any items noted on the "Final" inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph will be accomplished within the time slated for completion of the entire work or any particular increment thereof if the project is divided into increments by separate completion dates.

(2) Final Acceptance Inspection: The Subcontractor's Quality Control Inspection personnel, its superintendent or other primary management person and a CM representative will be in attendance at this inspection. Additional government personnel including, but not limited to, those from OWNER user groups may also be in attendance. The final acceptance inspection will be formally scheduled by CM based on notice from the Subcontractor. This notice will be given to the CM at least 14 days prior to the final acceptance inspection and must include the Subcontractor's assurance that all specific items previously identified to the Subcontractor as being acceptable, along with all remaining work performed under the subcontract, will be complete and acceptable by the date scheduled for the final acceptance inspection.

#### **K. Documentation**

The Subcontractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. The following quality assurance records are required to be prepared and maintained by the Subcontractor:

- (1) Sub-Contractor Quality Control Plan.
- (2) Coordination Meeting Minutes.
- (3) Submittal Register.
- (4) Material Test Reports.
- (5) Inspection Reports.
- (6) Material Deficiency Reports.
- (7) Corrective Action Reports.
- (8) Calibration Reports.
- (9) Qualification Reports.



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#### **L. Notification Of Noncompliance**

CM will notify the Subcontractor of any detected noncompliance with the foregoing requirements. The Subcontractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Subcontractor at the worksite, shall be deemed sufficient for the purpose of notification. If the Subcontractor fails or refuses to comply promptly, CM may issue an order stopping all or part of the work until satisfactory corrective action has been taken. A Corrective Action Report (CAR) will be completed upon correction of non-compliant work. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Subcontractor.

## **7. ENVIRONMENTAL**

### **7.1 DISPOSAL**

- A. The CM shall be responsible for the disposal of all non-hazardous debris, rubbish, and non-useable materials resulting from work under this subcontract. The Subcontractor shall be responsible to transport such debris to CM provided dumpsters and for separating and placing recyclable materials in provided dumpsters.
- B. The Subcontractor shall be responsible for assuring that all waste and excess sampling materials generated as a result of work under this subcontract is packaged, labeled, and stored in accordance with the Resource Conservation and Recovery Act and its associated state and local laws and regulations.
- C. The Subcontractor may be tasked to properly dispose of hazardous waste generated because of work under this subcontract. Transportation of hazardous waste to Owner designated (through the CM) disposal sites shall be the responsibility of the Subcontractor; however, manifests for disposal of hazardous waste shall be subject to review and approval of the CM, Owners Representative, or Owner prior to removal of hazardous material from the construction site.
- D. In connection with the disposal of hazardous or non-hazardous materials, the Subcontractor may be tasked to provide a list of recommended disposal sites.

## **8. PROJECT SPECIFIC PROVISIONS**

Note: Provisions preceded by a block are applicable only if marked "☒"

### **8.1 ☒ LIMITATION OF CONSTRUCTION MANAGER'S OBLIGATION**

- A. Of the total estimated price of the subcontract, the sum of \$5,000,000.00 is presently available, upon award, for the initial subcontract award.
- B. The Subcontractor agrees to perform or have performed work on the subcontract up to the point at which, in the event of termination of this subcontract pursuant to Terms and Conditions FAR Referenced Clause "Termination for Convenience of the Government, (Fixed Price)," the total amount payable by the Construction Manager (CM) (including amounts payable in respect of subcontract and settlement costs) would, in the exercise of reasonable judgment by the Subcontractor, approximate the total amount at the time allotted to this subcontract. The CM shall not be obligated in any event to pay or reimburse the Subcontractor in excess of the amount allotted to this subcontract at the time of termination, anything to the contrary of that entitled under terms and conditions titled, "Termination for Convenience of the Government, (Fixed Price)," notwithstanding.
- C. In order to ensure compliance with the requirements of paragraph (b) above, all schedules required by other articles of this subcontract shall relate to and describe the Subcontractor's proposed plan for performance of work and representation of work actually performed to the amount then allotted to this subcontract, and shall schedule and relate planning for future performance of work to the schedule of additional allotments to this subcontract as set forth in paragraph (a) above.
- D. If the CM is unable to provide additional funding as specified in the schedule in paragraph (a) of this article, the CM may opt for one, or a combination, of the following actions:
  - (1) Instruct the Subcontractor to continue performance of the subcontract to the extent permitted by currently allotted funds to this subcontract; or
  - (2) Negotiate with the Subcontractor to suspend all, or any part of, the work in accordance with the Terms and Conditions for Construction Article "Suspension of Work," provided, that if (1) the order suspending work does not extend for more than 15 days or (2) the need to order the suspension of work has resulted from the failure of the Subcontractor to schedule and perform the subcontract work in accordance with the provisions of paragraph (c), above, the Subcontractor shall not be entitled to an equitable adjustment in subcontract time nor price, nor shall the costs of the suspension be allowable in any subsequent termination of the Subcontractor for convenience of the CM, irrespective of the provisions of the "Suspension of Work" article, the "Termination for Convenience of the Government (Fixed Price)" article, or any other article or provision of the subcontract; or
  - (3) Terminate the performance of all or part of the work under this subcontract in accordance with the terms and conditions titled "Termination for Convenience of the Government (Fixed Price)" of the subcontract; or
  - (4) Take such other action as is agreed by the parties in writing to be appropriate under the existing circumstances.

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- E. If the Subcontractor incurs additional costs, or is delayed in performance of the work under this subcontract, solely by reason of failure of the CM to allot additional funds in accordance with the schedule set forth in paragraph (a), above, and if additional funds are allotted, an equitable adjustment shall be made in the subcontract price, or in the time of completion, or both. Failure to agree to any such equitable adjustment hereunder shall be a dispute in accordance with the provisions set forth in the Terms and Conditions, paragraph 1.24, Disputes.
- F. The CM may unilaterally at anytime prior to termination, allot additional funds for this subcontract. Upon written agreement of the parties, funds allotted to this subcontract may be reduced.
- G. No provisions contained within this article shall affect the right of the CM to terminate this subcontract pursuant to the Terms and Conditions, paragraph 1.39, Federal Acquisition Clauses Incorporated by Reference.
- H. The provisions of this article, and all other referenced terms and conditions, shall be included in all lower-tier subcontract for work to be performed under this subcontract.

#### **8.2 ☒ NUCLEAR HAZARDS INDEMNITY**

If performance involves risk of public liability for a nuclear incident of precautionary evacuation and Subcontractor is not subject to Nuclear Regulatory Commission (NRC) financial protection requirements of NRC indemnification, this subcontract incorporates by reference DEAR 952.250-70 Nuclear Hazards Indemnity Agreement. For purposes of incorporation, Subcontractor means this Subcontractor and all lower-tier Subcontractors.

#### **8.3 ☒ PRICE-ANDERSON AMENDMENTS ACT (NOV 01)**

In additions to the Nuclear Hazards Indemnity Agreement clause, the following shall apply:

- (A) The provisions of this clause shall apply to any activity carried out pursuant to this subcontract by the contractor, it's lower-tier Subcontractors, suppliers, and employees that has the potential to result in a risk of harm from radiation or radioactive material, or potential to affect a nuclear or radiological facility or activity.
- (B) The Subcontractor shall: (1) comply with all applicable requirements of 10 C.F.R. 830.122, Quality Assurance Requirements, or a quality assurance program that meets the stated requirements of 10 C.F.R. 830.122, and (2) implement, document, and maintain such programs (e.g. administrative controls, procedures and technical work documents) as necessary to ensure compliance with the Quality Assurance requirements section of this subcontract. The Subcontractor's programs and associated documents are subject to review at all times by the CM and Owners Representative.
- (C) The Subcontractor shall include this clause in all lower-tier subcontracts for any activity subject to the applicability requirements in paragraph A.
- (D) The Subcontractor shall promptly report violations of the subcontract specifications and any failure to provide the requested product or service to the CM.

#### **8.4 ☒ DIRECTED PROCUREMENT PAYMENTS**

Unless otherwise provided, terms of payment shall be net 30 days from the latter of (1) receipt of lower-tier subcontractors approved invoice, or (2) delivery of supplies/completion of work, as detailed in the Subcontractor or any lower tier Subcontractor's Call, Purchase Order, or other instrument supporting the lower-tier subcontract's obligation to the Subcontractor. Any offered discount shall be taken if payment is made within the discount period that lower-tier subcontractor indicates. Payments may be made either by check or electronic funds transfer, at the option of the Subcontractors. Payment shall be deemed to have been made as of the date of mailing or the date on which an electronic funds transfer was made.

#### **8.5 ☒ DISPUTES BETWEEN SELLER AND AUTHORIZED LOWER-TIER SUBCONTRACTORS (applies to Directed procurements)**

- A. Subcontractor is an authorized user of lower-tier subcontracts for providing goods and services negotiated by the CM for work on this project. Those lower-tier subcontracts are identified in the Scope of Work in this subcontract. The CM will authorize certain lower-tier Subcontractors to utilize this price agreement in accordance with the terms and conditions hereof. Such lower-tier Subcontractors shall place a Purchase Order/Task Order Release (TOR) with the Subcontractor for the goods and/or services covered by this agreement, thereby establishing the contractual relationship between Subcontractor and the authorized lower-tier Subcontractor. The CM assumes no responsibility for the payment of proper invoices issued by the Subcontractor to the lower-tier Subcontractor. All payments are to be made by the Subcontractor.
- B. Any dispute, claim or obligation that may arise between the Subcontractor and authorized lower-tier Subcontractor(s) shall be resolved between the Subcontractor and the lower-tier Subcontractor(s) in accordance with Section 1.24; Disputes. The CM reserves the right to participate and intervene in any settlement or dispute resolution activity. The Subcontractor is hereby required to inform CM of all such activity between the Subcontractor and authorized lower-tier Subcontractor(s).

#### **8.6 ☐ LIMITATIONS ON SUBCONTRACTING**

This paragraph shall only apply to those procurement actions that have been designated as a Small Business Set-Aside acquisition. This clause is not applicable to an unrestricted procurement action. By execution of this subcontract, the Subcontractor agrees that in performance of the subcontract in the case of a subcontract for General Construction, the Subcontractor will perform at least 15 percent of the cost of the subcontract, not including the cost of materials, with its own employees, and if in the case of a Special Trade subcontract, the Subcontractor will perform at least 25 percent of the cost of the subcontract, not including the cost of materials, with its own employees.

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## **9. PROJECT REQUIREMENTS**

### **9.1 GENERAL PERMIT—WET WEATHER CONVEYANCES**

The General Permit for the Alteration of Wet Weather Conveyances is incorporated herein by reference and made a part of this subcontract. The General Permit is contained Exhibit 17, of this subcontract and is applicable to all work to be performed under this subcontract.

### **9.2 INSURANCE**

- A. The CM has arranged for the project to be insured under a CM Coordinated Insurance Program (CMCIP), to provide the Subcontractor and its lower-tier Subcontractors and the CM and other Indemnities, all collectively referred to in this clause as "Enrolled Parties", (1) workers' compensation and employer's liability insurance, (2) commercial general liability insurance, (3) excess liability insurance, and (4) builder's risk as summarily described below, in connection with the performance of the work (CMCIP coverages).

- B. CMCIP coverages shall apply only to those operations of each enrolled party performed at the project site in connection with the work and only to enrolled parties that are eligible for the CMCIP. If a party who is not eligible for the CMCIP is erroneously enrolled in the CMCIP, that party would not be entitled to coverage hereunder. An enrolled party's operations away from the project site, "off-project site" including product manufacturing, assembling, or otherwise, shall only be covered if such "off-project site" operations are identified and are dedicated solely to the project. CMCIP coverages shall not cover "off-project site" operations receipt by Subcontractor of written acknowledgment of such coverage from the CM. The CMCIP does not cover products liability for any product manufactured, assembled, or otherwise worked on away from the project site, unless such manufacturing or assembly is expressly required by the contract documents and Subcontractor has received written acknowledgement of such coverage from the CM. The CMCIP shall provide only the following insurance to eligible and enrolled parties:

- (1) Workers' Compensation Insurance Statutory Limit

**This insurance is primary for all occurrences at the project site:**

Employer's Liability Insurance	
Bodily Injury by Accident, each accident	\$1M
Bodily Injury by Disease, each employee	\$1M
Bodily Injury by Disease, policy limit	\$1M

**This insurance is primary for all occurrences at the Project Site:**

- (2) General Liability Insurance

Each Occurrence Limit	\$2M
General Aggregate Limit for all Eligible Enrolled Parties	\$4M
Products/Completed Operations Aggregate	
For all eligible Enrolled Parties including 5 years	
products and completed operations extension	\$4M

**This insurance is primary for all occurrences at the Project Site:**

- (3) Excess Liability Insurance

(Over Employer's Liability and General Liability)	
Combined Single Limit	\$50M
General Annual Aggregate for all	
Eligible Enrolled Parties	\$50M
Five-Year Products and Completed Operations Extension	
Following Form underlying General Liability and Employer's Liability	

- (4) Builder's Risk Insurance covering "all risk" perils, including earthquake and flood, with limits to be the full replacement cost of the Work.

- C. Information about the insurance coverages and exclusions, safety/loss control requirements, claims administration and requirements for enrolling in the CMCIP will be fully described in the CMCIP Insurance Procedures Manual, ES&H Manual, and each respective insurance policy form. Each enrolled Subcontractor will receive their own Worker's Compensation Policy. The General Liability Policy, Excess Liability Policy, and the Builders Risk Policy are project policies that will be available on file in the project manager's office. Furthermore, the CMCIP will be set forth in full in each of the respective policy forms and such policies shall govern the CMCIP. The description of the CMCIP in this clause is not intended to be complete and to the extent that the descriptions contained herein differ from the language of a policy, the policy language shall govern. It is expressly understood that in the event of any loss, the insurance policies, terms, conditions, exclusions, and available limits of valid and collectible insurance shall govern the settlement of losses under such policies.

- D. The CMCIP insurance does not cover: (1) hazardous materials remediation, removal, and/or transport companies and their consultants; (2) architects, surveyors, engineers, soil testing engineers, and their consultants; (3) vendors, suppliers, fabricators, material dealers, truckers, haulers, drivers, and others who merely transport, pickup, deliver, or carry materials, personnel, parts or equipment, or any other items or persons to or from the project site; (4) Subcontractors and each of their respective lower-tier Subcontractors who do not perform any actual labor on the project site during the term of agreement; (5) any parties or entities not specifically identified in this clause or excluded by the CM in its sole discretion, even if otherwise eligible.

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- E. The CM intends to purchase the insurance described above covering the work performed at the project site through the CMCIP; therefore, the Subcontractor and its lower-tier Subcontractors shall include the cost of the insurance required in this clause as a separate item in the proposal price. Such cost of the insurance (insurance credit) will then be removed from the proposal price to cover the cost of the insurance program being provided under the CMCIP. This cost will be subject to adjustment pursuant to paragraphs f and m of this article.
- F. In calculating the insurance cost to be included in the proposal price, the Subcontractor and its lower-tier Subcontractors shall use the limits, coverages, and all other requirements specified in this clause. The Subcontractor agrees that the CM reserves the right to audit and upon request of CM, the Subcontractor and its lower-tier Subcontractors shall make available all insurance policies for review of rates by CM. In the event an appropriate deduction to the proposal price is not provided by the Subcontractor and its lower-tier Subcontractors at the time of proposal, the CM reserves the right to deduct a reasonable insurance cost from the proposal price, which will be subject to audit of Subcontractor's and its lower-tier Subcontractors' actual cost after the date of final completion of the work.

Worker's Compensation	Statutory, State of TN
Employer's Liability	
Bodily Injury by Accident	\$500,000 each accident
Bodily Injury by Disease	\$500,000 policy limit
Bodily Injury by Disease	\$500,000 each employee

Commercial General Liability and/or Umbrella—Contractor	
General Aggregate per Project	\$5M
Products/Completed Operations Aggregate	\$5M
Personal Injury and Advertising Injury	\$5M
Bodily Injury and Property Damage Combined	
Single Limit Each Occurrence	\$5M

Coverage shall be on an occurrence form. Lower-tier Subcontractors are required to carry minimum limits of \$1M each occurrence and annual aggregate.

Automobile Liability insurance as specified by Insurance Services Office, form number CA 0001 Symbol 1 (any auto), with an MCS 90 endorsement and a CA 9948 endorsement (or equivalent) attached if hazardous materials or waste are to be transported.

- G. If the CMCIP insurance described above is canceled or modified, or the CM requests that the Subcontractor or any of its lower-tier Subcontractors withdraw from the CMCIP, the CM may either, at CM's sole discretion, purchase substantially equivalent insurance from another insurance company or the CM will issue a change order to the Subcontractor at least 30 days before the effective date of cancellation, modification, or withdrawal. If such change order is issued, the Subcontractor or lower-tier Subcontractor, as applicable, shall obtain all coverage as required by this clause (or the portion thereof as specified by the CM). The Subcontractor shall, within 20 days of the issuance of such approved change order, provide the CM with the insurance certificate or policy required by this clause for such insurance (the form, content, limits of liability, cost, and the insurer issuing such replacement insurance subject to CM's approval) along with a statement of the estimated monthly cost for maintaining this insurance.
- H. Additional insurance coverage will be required to be provided by the Subcontractor. Insurance provided to the Subcontractor and its lower-tier Subcontractors under the CMCIP does not cover the Subcontractor's or its lower-tier Subcontractors' automobiles, tools, and equipment. The CMCIP also does not cover Workers' Compensation claims or Commercial General Liability claims arising from "off-project site" work. Subcontractor and its lower-tier Subcontractors shall obtain and maintain the insurance coverage specified below in a form and from insurance companies reasonably acceptable to CM for (i) "off-project site" activities and (ii) operations not insured under the CMCIP coverages. The insurance limits may be provided through a combination of primary and excess policies, including the umbrella form of policy. Each policy required under this clause shall name the enrolled parties as additional insured. The additional insured endorsement shall state that the coverage provided to the additional insured is primary and non-contributing with respect to any other insurance available to the additional insured.
- (1) The Subcontractor and its lower-tier Subcontractors must provide the following insurance and the cost of this insurance shall be included in the Subcontractor's proposal price: (i) Standard Commercial Automobile Liability Insurance for all work performed; (ii) Subcontractor's Equipment policy, covering physical damage or loss to all tools and equipment used for all work performed and containing a Waiver of Subrogation in favor of the Indemnitees; (iii) "Off-Project Site" Statutory Workers' Compensation and Employers Liability insurance with statutory limits as required by law, including Maritime coverage, if appropriate, and each containing a Waiver of Subrogation in favor of the Indemnitees and Employer's Liability limits of not less than \$1,000,000 each accident/\$1,000,000 each employee/\$1,000,000 policy; (iv) "Off-Project Site" Commercial General Liability Insurance in a form providing coverage not less than the standard ISO Commercial General Liability insurance policy ("Occurrence Form"). The limits shall be:
- |   |      |
|---|------|
| Each Occurrence                         | \$1M |
| General Aggregate                       | \$2M |
| Products/Completed Operations Aggregate | \$1M |
| Personal/Advertising Injury Aggregate   | \$1M |
- Any excess coverage, including an umbrella form of policy, under this item shall also be over the Standard Commercial Automobile Liability Insurance and the Employer's Liability specified above.
- I. Subcontractor shall pay to CM a sum of \$5,000 of each occurrence, including court costs, attorneys' fees, and costs of defense for bodily injury or property damage to the extent of losses payable under the CMCIP General Liability Policy are

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attributable to Subcontractor's work, acts or omissions, or the work, acts or omissions of any lower-tier Subcontractors, or any other entity or party for whom Subcontractor may be responsible ("General Liability Obligation"). The General Liability Obligation shall remain uninsured by Subcontractor and will not be covered by the CMCIP coverages.

- J. Subcontractor shall pay to the CM an assessment sum of \$5,000 for each loss payable under the CMCIP Builder's Risk Policy attributable to Subcontractor's work, acts or omissions, or the work, acts or omissions of any lower-tier Subcontractors, or any other entity or party for whom the Subcontractor may be responsible ("Builder's Risk Obligation"). The Builder's Risk Obligation shall remain uninsured by Subcontractor and will not be covered by the CMCIP coverages. The Subcontractor and each of its lower-tier Subcontractors shall be solely responsible for any loss or damage to its or their personal property including, without limitation, property created or provided under the contract documents. Partial occupancy, or use of the project, shall not commence until all insurers providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. Subcontractor shall take reasonable steps to obtain consent of insurers and shall not, without mutual consent, take any action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of insurance.
- K. Other provisions of the CMCIP shall be: (1) the CM shall pay all premiums and all refunded premiums will be paid to the CM, and (2) Subcontractor shall be solely responsible for safety on the project. Subcontractor shall establish a safety program that, at a minimum, complies with all local, state, and federal safety standards, and the ES&H Manual that has been established for the project. Subcontractor shall submit a copy of its specific project site safety program to the CM prior to mobilization to job site. The Subcontractor shall recognize that it is important to its business and the CM's project to prevent the occurrences of incidents that lead to occupational injuries or illnesses. The importance of safety, health, and security requirements on this project being acknowledged by Subcontractor. Subcontractor shall prepare and administer the safety, health, and security requirements as an integral part of all Subcontractors' planning and operations.
- L. All insurance provided under the CMCIP will be terminated on the date of final completion except for extensions relating to the five year completed operations period under the commercial general liability and excess umbrella liability policies. After the date of final completion, so long as Subcontractor or any lower-tier Subcontractor continues to perform at the project site, Subcontractor and any lower-tier Subcontractor so performing shall provide the insurance specified in this clause.
- M. The insurance company may perform physical audits of the Subcontractor or lower-tier Subcontractor's project payrolls periodically during the course of the work and/or at the date of final completion or within three years after the date of final completion. These audits could produce either additional premiums or return of premium based on actual payroll.
- N. Subcontractor and its lower-tier Subcontractors will be required to: (1) furnish information required to issue the insurance policies; (2) maintain separate payroll records for the work performed on this project and have such records available upon request; (3) maintain separate "regular" and "overtime" payrolls in accordance with the CMCIP Insurance Company's normal audit procedures; (4) except as otherwise specified in the agreement, maintain payroll information on file for a period of not less than five years beyond the date of final completion or until the completion of any ongoing audit process, which ever occurs later; (5) assist in the reporting and investigation of any accident and, upon request, cooperate with the CMCIP Insurance Company in the handling of any claim by securing and giving evidence and obtaining the cooperation of witnesses as required for any claim or suite; (6) sign a dividend release form authorizing the CMCIP Insurance Companies to pay any dividends, refund, or retrospective returns directly to the CM; (7) allow the CM to perform periodic audits of Subcontractor's or any of its lower-tier Subcontractors' payroll records, books and records, insurance coverages, insurance cost information, or any other information that Subcontractor or any of its lower-tier Subcontractors provides to CM; (8) notify its insurance brokers, agents, and insurers of the insurance coverage provided under the CMCIP and instruct them to exclude such coverage from their other policies. Copies of such letter shall be sent to the CM. Include this special condition in its subcontracts and require each lower-tier Subcontractor to do likewise; (9) cooperate with the CM, CMCIP treating physician, and insurance company to facilitate and implement the CMCIP "Return-to-Work Policy" program for work related injuries as provided for in the CMCIP Insurance Procedures Manual and ES&H Manual. The Subcontractor and its lower-tier Subcontractors engaged in work under the agreement shall provide "return-to-work" or "transitional duty work" assignments for those employees who are injured or become ill in the course and scope of their work on the project under the agreement.
- O. The CM and the Subcontractor waive all rights against each other and against the other Subcontractors and all its lower-tier Subcontractors, for damage caused by fire or other perils to the extent covered by property insurance obtained pursuant to requirements under this clause or other property insurance applicable to the work. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly and whether or not the person or entity had an insurable interest in the property damaged. The Subcontractor shall pay all its tiered Subcontractors their just shares of insurance proceeds received by the Subcontractors and shall require lower-tiered Subcontractors to make payments to their sub-tiered Subcontractors in a similar manner.

### **9.3 SUBCONTRACTOR EMPLOYEES**

- A. The Subcontractor shall provide to the PM the name or names of the responsible supervisory person or persons authorized to act for the Subcontractor who are competent to supervise the work and satisfactory to the CM.
- B. The Subcontractor shall furnish sufficient personnel to perform all work specified within the subcontract.
- C. The Subcontractor's employees that are assigned to this project cannot be removed or replaced without the expressed written consent of the CM. In such instances when the Subcontractor determines that there is a need to remove or replace personnel that have been assigned to the project it is the Subcontractor's responsibility to provide the CM with prior written notice of not less than fifteen calendar days before the removal or replacement of such personnel. The Subcontractor shall provide resumes of personnel for consideration by the CM.

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#### **9.4 SUPERINTENDENCE BY THE SUBCONTRACTOR**

- A. The Subcontractor shall be responsible to CM, for the acts and omissions of all employees and all sub-tiers, their agents and employees, and all other persons performing any of the Work under a subcontract with the Subcontractor or under the direct supervision of Subcontractor in performance of the Work.
- B. Subcontractor shall designate a full-time on-site field superintendent (the "Subcontractor's Representative"), who shall be assigned to the Project site and who shall have authority to receive notices and instructions on Subcontractor's behalf, and who shall be in charge of and responsible for the Work. Subcontractor's Superintendent shall be competent, fully acquainted with the Work, and have the authority to approve changes in the Work on behalf of Subcontractor. Subcontractor's Superintendent shall render approvals and decisions promptly and furnish information expeditiously and in time to meet the dates set forth in the Subcontract Schedule. Subcontractor shall not commence Work until it has furnished CM in writing the name of the Subcontractor's Superintendent.
- C. The Subcontractor shall not remove or replace its project superintendence staff as assigned to the project site without the expressed written permission of the CM. In cases where the Subcontractor has identified the need to remove or replace its project superintendence personnel, the Subcontractor shall notify the CM in writing ten days prior to the change. The Subcontractor's notification shall be accompanied by resumes of those persons being considered by the Subcontractor as replacements for the personnel leaving the project site. The CM shall issue its written approval of all replacement superintendence personnel prior to their assignment to the Project.

#### **9.5 RECORD RETENTION**

- A. The Subcontractor shall establish and maintain approved documented procedures for identification, collection, indexing, access, filing, storage, maintenance, and disposition of all records supporting contracted work. Records shall include, but not be limited to, both the hard copy and electronic data supporting contractual, financial, analytical, testing, calibration, maintenance, design, construction, Quality Assurance/Quality Control, and health and safety work performance. Both the hard copy and the electronic deliverable are required because as laboratory systems are modified the electronic data system may not remain compatible with older data files.
- B. Storage of records ensures that records are readily retrievable in facilities that provide a suitable environment to minimize deterioration or damage and to prevent loss.
- C. The Subcontractor shall retain all records for a period of five years after completion of the last delivery order issued against the subcontract, if any, or from date of final payment, whichever is later and applicable.
- D. The Subcontractor shall provide access to the records to the CM, Owners Representative, and Owner or their representatives at any time during the retention period described above.
- E. The Subcontractor shall appropriately maintain and ensure the retrievability of records that require special processing and control, such as computer codes or information on high-density media or optical disks.

#### **9.6 SPECIAL REQUIREMENTS**

The Subcontractor shall:

- A. Pay all fines, penalties, and other expenses, including attorneys fees, imposed upon or incurred by the Subcontractor for its failure to comply with any applicable federal, state, and local laws and ordinances;
- B. Reduce to writing every subcontract and/or order it awards for work under this subcontract, unless this requirement is waived in writing by the CM, and ensure that (i) each subcontract and/or order contains a statement that the subcontract and/or order is assignable to CM; (ii) each of these subcontracts and/or orders are in the Subcontractor's own name; and (iii) none of these subcontracts and/or orders bind or purports to bind CM or any of CM's employees;
- C. Furnish sufficient technical, supervisory, and administrative personnel of the work in accordance with the progress schedule approved by the PM; and
- D. Cause all work under this subcontract to be performed in a skillful and workmanlike manner. The CM may require, in writing, that the Subcontractor remove from the work any employee the CM deems incompetent, unprofessional, careless, or otherwise objectionable.

#### **9.7 PROJECT COORDINATION**

- A. This section specifies minimum administrative and supervisory requirements necessary for coordination on the project to be collectively fulfilled by the Subcontractors including, but not limited to:
  - (1) Coordination.
  - (2) Administrative and supervisory personnel.
- B. Each Subcontractor shall participate in these coordination requirements, even though certain areas of responsibility are assigned to a specific Subcontractor, and even though CM has general responsibility for overall coordination.
- C. Each Subcontractor shall submit, for information, a subcontract organization chart to the CM within ten days of Notice to Proceed.
- D. Coordination: Each Subcontractor shall coordinate its construction activities with those of the CM and other Subcontractors as well as other entities involved to assure efficient and orderly installation of each part of the work. Each Subcontractor shall

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coordinate its operations with operations included under different sections of the specifications that are dependent upon each other for proper installation, connection, and operation. Subcontractor shall cooperate with CM, Owners Representative, Owner and other Subcontractors in scheduling and performing the Work to avoid conflict, delay or interference in the Project or in the work of CM, Owners Representative, Owner or others. Subcontractor shall avoid interference with the operation of adjacent facilities, streets, sidewalks, railroads and utilities. If any part of the Work depends upon timely and proper execution or results of the work of CM, Owner or other Subcontractors, Subcontractor shall promptly report any delays, discrepancies or defects in such other work to CM in writing before proceeding with the Work. Subcontractor's failure to make such a report shall constitute acceptance of such other work as being fit, proper, and ready to receive the Work. Subcontractor shall protect benchmarks and monuments whether of record or by others and replace same if damaged by Subcontractor. Subcontractor shall use the site entrances and staging and parking areas designated by CM.

- E. Where installation of one part of the work is dependent on installation of other components, either before or after its own installation, each Subcontractor shall schedule its construction activities in the sequence required to obtain the best results.
  - (1) Where availability of space is limited, coordinate installation of different components with other Subcontractors to assure maximum accessibility for required maintenance, service, and repair.
  - (2) Make adequate provisions to accommodate items scheduled for later installation.
- F. Where necessary, prepare memoranda for distribution to the CM and each party involved outlining special procedures required for coordination. Include items such as required notices, reports, and attendance at meetings.
- G. Administrative Procedures: Coordinate scheduling and timing of its administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to:
  - (1) Preparation of schedules.
  - (2) Installation and removal of temporary facilities.
  - (3) Delivery and processing of submittals.
  - (4) Progress meetings.
  - (5) Project Closeout activities.
- H. Administrative and Supervisory Personnel: In addition to its project manager and/or superintendent, each Subcontractor shall provide other administrative and supervisory personnel, required for proper performance of the work, including special personnel required for coordination of operations with other Subcontractors. Construction activities requiring coordination by the Subcontractor include but are not limited to:
  - (1) Scheduling and sequencing the work.
  - (2) Sharing access to work spaces.
  - (3) Installations.
  - (4) Protection of each other's work.
  - (5) Cutting and patching.
  - (6) Selections for compatibility.
  - (7) Tolerances.
  - (8) Preparation of Coordination Drawings.
  - (9) Inspections and tests.
  - (10) Utilization of temporary services and facilities

#### **9.8 PROJECT MEETINGS**

- A. This section specifies administrative and procedural requirements for project meetings including but not limited to:
  - (1) Preconstruction Conference.
  - (2) Preconstruction Labor Conference.
  - (3) Pre-Installation Conferences.
  - (4) Coordination Meetings.
  - (5) Safety Meetings.
  - (6) Progress Meetings.
  - (7) OFCCP Monthly Meetings.
  - (8) Union/Management Administrative Monthly Meetings.
  - (9) Special Meetings and Activities

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#### **B. Preconstruction Conference**

- (1) Attend a preconstruction conference and organizational meeting at the project site or other convenient location within 15 days after award of subcontract and at least 5 days prior to commencement of construction activities, as directed by the CM. Attend meeting to review responsibilities and personnel assignments.
- (2) Attendees: The CM, a senior subcontract officer, the Subcontractor's superintendent, major lower-tier Subcontractors and their superintendents, manufacturers, suppliers, and other concerned parties shall each be present at the conference. These individuals shall be familiar with and authorized to conclude matters relating to the work.
- (3) Agenda: Discuss items of significance that could affect progress including but not limited to:
  - i. Safety.
  - ii. Tentative construction schedules.
  - iii. Critical work sequencing.
  - iv. Designation of responsible personnel.
  - v. Procedures for processing field decisions and Change Orders.
  - vi. Procedures for processing Applications for Payment.
  - vii. Distribution of Contract Documents.
  - viii. Submittal of Shop Drawings, Product Data, and Samples.
  - ix. Preparation of record documents.
  - x. Use of the premises.
  - xi. Office, work, and storage areas.
  - xii. Equipment deliveries and priorities.
  - xiii. Safety procedures.
  - xiv. First aid.
  - xv. Security.
  - xvi. Housekeeping.
  - xvii. Working hours.
  - xviii. Major equipment requirements.

#### **C. Preconstruction Labor Conference**

- (1) Attend a preconstruction labor conference at the project site or other convenient location within 15 days after award of subcontract and at least 5 days prior to commencement of construction activities for the purpose of reviewing the Construction Labor Agreement with the Knoxville Building and Construction Trades Council and its application to the work of this subcontract. The Subcontractor shall publish minutes of this meeting and shall distribute the minutes to all trades/individuals in attendance, the president of The Knoxville Building and Construction Trades Council, and the CM within forty-eight hours of the meeting. The Subcontractor will not be allowed to mobilize until the CM has received a copy of these minutes.
- (2) The Subcontractor shall contact one of the following individuals to arrange the Pre-construction Labor Conference:

Ray Whitehead (Primary Contact)  
100 Buchanan Avenue  
Knoxville, TN 37917  
(865) 687-1787 (Phone)  
(865) 687-4232 (Fax)  
[ww147rlw@aol.com](mailto:ww147rlw@aol.com) (email)

Tommy Fuller (Secondary Contact)  
112 Hillcrest Drive  
Knoxville, TN 37918  
(865) 689-2928 (Phone)  
(865) 689-9959 (Fax)  
[smwlu5@msn.com](mailto:smwlu5@msn.com) (email)

**It is suggested that the Subcontractor make contact to arrange the Pre-construction Conference within five (5) days of award.**

#### **D. Pre-Installation Conferences**

- (1) Arrange and conduct a pre-installation conference at the site before each new construction feature of work. The Subcontractor's installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise the CM of scheduled meeting dates.
- (2) Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for:
  - i. Safety.
  - ii. Contract documents.
  - iii. Options.



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- iv. Related Change Orders.
- v. Purchases.
- vi. Deliveries.
- vii. Shop drawings, product data, and quality control samples.
- viii. Possible conflicts.
- ix. Compatibility problems.
- x. Time schedules.
- xi. Weather limitations.
- xii. Manufacturer's recommendations.
- xiii. Compatibility of materials.
- xiv. Acceptability of substrates.
- xv. Temporary facilities.
- xvi. Space and access limitations.
- xvii. Governing regulations.
- xviii. Inspection and testing requirements.
- xix. Required performance results.
- xx. Recording requirements.
- xxi. Protection.

(3) The Subcontractor shall record significant discussions, agreements, and disagreements of each conference, along with the approved schedule. The Subcontractor shall distribute the record of the meeting to everyone concerned, within two working days of the meeting, including the CM.

(4) Do not proceed if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of work and reconvene the conference at the earliest feasible date.

#### **E. Project Meetings**

(1) The CM will hold frequent jobsite project meetings on a regularly scheduled basis for the purpose of ensuring orderly and expeditious completion of the work and to provide coordination and communications between all parties involved. Such meeting will include the CM's construction engineer/ superintendent, Subcontractor's superintendent, and responsible representatives of sub Subcontractors, and when desirable, vendors or suppliers.

(2) At these meetings, safety activities, schedules, and progress shall be reviewed; work activities and administrative procedures coordinated; problem areas identified and corrective actions initiated; and pending changes discussed. Any other pertinent or timely subjects should be included on the meeting agenda. Minutes of each meeting shall be promptly issued by the CM to all attendees.

(3) Recorded meeting results will be distributed by the CM to the Subcontractor and anyone else in attendance or others affected by decisions or actions resulting from each meeting as deemed appropriate by the CM.

Schedule Updating: Revise the Subcontractor's construction schedule according to section "Schedules and Reports" incorporating decisions or actions resulting from the meetings and agreed to by the CM.

#### **F. OFCCP Monthly Meeting: The SNS Project is being constructed by Owner in Oak Ridge, Tennessee, at an estimated cost of \$1.3 billion. Due to the government's capital investment, the fact that construction will last more than two years and will have significant economic development and employment impacts on Oak Ridge and the surrounding region, SNS qualifies as a "Mega Construction Project."**

As a federally-funded, mega construction project, the SNS Project must meet Equal Employment Opportunity (EEO) and Affirmative Action (AA) requirements for utilization of minorities, females, covered Veterans, and individuals with disabilities in the project's construction labor force. Workforce goals for the SNS Project are 6.8 percent participation by minorities and 6.9 percent participation by females. Compliance with these requirements will be monitored by the Nashville, Tennessee, Office of Federal Contract Compliance Programs (OFCCP). There are no stated goals regarding the utilization of covered Veterans and individuals with disabilities but good faith efforts should be made to utilize these individuals.

To assist Owner and the CM in meeting OFCCP's requirements, an SNS Project Oversight Committee has been established. The Subcontractor shall support this Oversight Committee by attending the monthly Oversight Committee meetings and being prepared to discuss the good faith efforts it is taking to meet the aforementioned goals. The meetings are normally no longer than two hours in length.

#### **G. Union/Management Administrative Committee: The Subcontractor shall participate in monthly Union/Management Administrative Committee activities pursuant to Article XV of the Construction Labor Agreement contained in the Exhibit 13 of this subcontract. These meetings are normally no longer than two hours in length.**

#### **H. Special Meetings and Activities**

(1) The Subcontractor and all of its lower-tier Subcontractors will be required to participate in special site wide meetings and activities. The Subcontractors and its lower-tier Subcontractor's participation in these meetings and activities will be at no cost to the CM. These site wide meetings and activities include but are not limited to the following:

- i. Quarterly all hands safety meetings.
- ii. Awards presentations.

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- iii. Special ceremonies.
- iv. Fire drills.
- v. Tornado drills.
- vi. Site wide safety drills of any kind.

#### **9.9 SUBMITTALS, SPECIFICATIONS, AND DRAWINGS**

- A. Subcontractor/Offeree: Submit data denoted in specifications and other subcontract documents in quantities indicated and in strict accordance with the following instructions. Data submitted with the Offerors proposal shall be identified by Request For Proposal Number, WBS number, and, if applicable, Equipment Number. Subsequent data shall be identified with respective Subcontract Number, applicable Specification Section Number, as well as specific Equipment Number(s). Cost and expense of submitting this data shall be included in the proposal. Unless otherwise instructed submittals should be addressed to:

Knight/Jacobs Joint Venture  
701 Scarboro Road, MS 6476  
Oak Ridge, TN 37830  
Attention: CM

- B. Specifications and Drawings for Construction

- (1) The Subcontractor shall keep on the work site a copy of the drawings and specifications, and shall at all times give the CM access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in drawings, or in the specifications, the matter shall be promptly submitted to the CM, which shall promptly make a determination in writing. Any adjustment by the Subcontractor without such a determination shall be at its own risk and expense. The CM shall furnish from time to time such detailed drawings and other information as considered necessary.
- (2) All subcontract project activity direction and approvals shall be the responsibility and authority of the CM.
- (3) Where "as shown," "as indicated," "as detailed," or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this subcontract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provided complete in place," that is "furnished and installed."
- (4) Shop drawings mean drawings submitted to the CM by the Subcontractor, sub-Subcontractor, or any lower-tier sub-Subcontractor pursuant to this construction subcontract, showing in detail:
  - i. The proposed fabrication and assembly of various temporary and permanent elements.
  - ii. The installation (i.e., form, fit, and attachment details) of materials or equipment. It includes drawings, diagrams, layouts, schematics, vendor (descriptive literature, illustrations, schedules, maintenance manuals, installation instructions, mechanical/electrical pre-operational test and check out procedures, interconnecting diagrams, original equipment manuals, performance and test data as required by the subcontract documents) data and similar materials furnished by the Subcontractor to explain in detail specific portions of the work required by the subcontract. The CM, Owners Representative and the Owner may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this subcontract.
- (5) If this subcontract requires shop drawings, the Subcontractor shall coordinate all such drawings and review them for accuracy, completeness, and compliance with subcontract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the CM without evidence of the Subcontractor's approval may be returned for resubmission. The CM will indicate an approval or disapproval of the shop drawings and, if not approved as submitted, shall indicate the CM's reasons therefore. Any work done before such approval shall be at the Subcontractor's risk. Approval by the CM shall not relieve the Subcontractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this subcontract, except with respect to variations described and approved in accordance with sub-paragraph B. (6) below.
- (6) If shop drawings show variations from the subcontract requirements, the Subcontractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the CM approves any such variation, the CM shall issue an appropriate subcontract modification, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.
- (7) The Subcontractor shall submit to the CM for approval eight copies and one reproducible (unless otherwise indicated) of all shop drawings and vendor data as called for under the specifications. Seven sets and the reproducible (unless otherwise indicated) of all shop drawings and vendor data will be retained by the CM and one set will be returned to the Subcontractor. Upon completing the work under this subcontract, the Subcontractor shall furnish a complete set of all shop drawings and vendor data as finally approved. These drawings shall show all changes and revisions made up to the time the equipment is completed and accepted.
- (8) In addition, all drawings (shop and/or fabrication, erection, assembly, interconnection ect.) shall be submitted in electronic format on a CD in portable data format (.pdf). Drawings as referred to in this paragraph do not include vendor data/cut sheets but do include and are not limited to: re-bar fabrication and placement drawings, structural steel shop fabrication, erection and installation drawings, equipment assembly and installation drawings, fire protection and sprinkler fabrication and installation drawings, instrumentation loop sheets and electrical interconnection drawings. The Subcontractor shall also submit a drawing list with each drawing submittal in an electronic (Microsoft® Excel 2000) format. Refer to Exhibit 19, Subcontractor Submittal Drawing Log, for required format. This form can be made available to the Subcontractor in electronic format.

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(9) In addition to as-built shop drawings, the Subcontractor shall maintain a set of "As-Built" drawings and specifications marked concurrently with construction progress to reflect the work as placed. As-built changes shall be shown in red, and shall reflect the actual entity. One set of as-built drawings and specifications indicating the affected work shall be furnished to the CM prior to final acceptance of that part of the work.

**(10) These requirements shall be included in all sub-subcontracts of any tier.**

**C. Technical Data Requirement Sheet**

(1) The Subcontractor shall submit all shop drawings, vendor data, and samples in accordance with the Technical Data Requirements Sheet provided under the subcontract technical scope of work or as otherwise specified.

(2) Submittals General: All data submitted shall comply with the following:

- i. All equipment, materials, drawings, parts list, instruction manuals, and all other Subcontractor supplied items are to be marked with the building number, the WBS number, equipment number, and the CM's subcontract number. Spare parts lists are to be marked with the manufacturer's identification.
- ii. Vendor data supplied must be clearly identified and related to the technical specifications and Technical Data Required Sheet(s). Failure to comply will result in data being returned to the Subcontractor.
- iii. Data "For Approval" will be required in accordance with paragraph B above, unless otherwise specified in the technical scope.
- iv. Vendor data for a given item must be complete and submitted in one package unless otherwise indicated. Partial submittals will be returned. Drawing/Vendor Data approval comments shall be in accordance with the following:
  - a. The CM's approval constitutes a check for compliance with the Purchase Order, or Subcontract Specifications and Standards furnished with the subcontract documents; no dimensional check is made of dimensions other than those furnished by the CM, as they are the responsibility of the seller or Subcontractor. Approval does not relieve the seller or Subcontractor from its responsibility for compliance with purchase order/subcontract requirements.
  - b. Information stamped "Approved" constitutes the CM's approval for fabrication and/or installation.
  - c. Information stamped "Approved as Corrected" constitutes approval as stipulated in paragraph (a) and fabrication may proceed with the provision that all corrections or changes as noted are incorporated in the fabrication of the materials. Should the seller or Subcontractor consider any approval note, as increasing the subcontract with respect to either money or time, or as an unacceptable technical requirement, the seller or Subcontractor must notify the CM's Purchasing Department prior to starting fabrication. Such notification must be made in writing and within one week after receipt of "Approved as Corrected" data. For these instances, fabrication and/or installation shall not proceed until the seller or Subcontractor receives written authorization from the CM recognizing and authorizing such increases in money or time or resolving technical unacceptability's.
  - d. Information returned "Revise and Resubmit" or "Not Approved" shall be reworked by the seller and/or Subcontractor, and shall be resubmitted for approval before beginning fabrication. No extension of subcontract performance period will be considered for this process.
  - e. When multiple documents are submitted "For Approval" and some are returned "Revise and Resubmit" or "Not Approved" fabrication should proceed on that portion of the work that has been "Approved" or "Approved as Corrected," representing a complete fabrication package. Fabrication should not be delayed on those items not affected by those documents not receiving approval.
  - f. Information submitted stamped "For Information Only" will be retained in the CM's files for that purpose. No approval is required or given.
  - g. After approval, but prior to final payment, the seller or the Subcontractor shall furnish checked and certified drawings marked "Certified For Construction" as called in the Purchase Order or subcontract. An authorized representative of the seller and/or Subcontractor shall sign "Certified For Construction" drawings.
  - h. The Subcontractor should anticipate, and allow in it's schedule, as much as thirty days for the CM to provide approval of any submittal.

(3) Shop Drawings and Material Submittal Register

- i. The Subcontractor shall submit within ten calendar days after receipt of Award unless otherwise indicated in this subcontract, the Shop Drawings and Material Submittal Register, listing all data submittals required by the subcontract, for information or review action by the CM. The Subcontractor is to utilize Microsoft® Excel 2000 in developing it's submittal register and is to submit an electronic copy on disk with each submittal in addition to the hard copy requirements. The Subcontractor can add additional information from what is shown on the example but must supply the information shown on the example, and any other information required by this subcontract, in the format shown. The Subcontractor is advised that contained in Exhibit 20, of this subcontract is a sample project submittal register and is provided for your information only and should be used as a guide for the degree of detail and content to be shown therein. The sample project register is not to be regarded as an accurate representation of the submittal requirements set forth in the technical specifications of this subcontract. It is incumbent upon the Subcontractor to formulate, compile, and submit its own project specific submittal register in accordance with the requirements of this article and the subcontract technical specifications.
- ii. The register shall indicate the type of item (submittal), subcontract or specification requirement reference, the Subcontractors schedule dates for submitting the above items and projected need dates. Items listed on the register shall be such that all shop drawings or data required under each item will normally be submitted under one

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transmittal. The Subcontractor shall avoid listing single broad entries, which require multiple transmittals of drawings or data.

- iii. The Subcontractor shall update its initial register and issue it monthly under separate cover with the invoice. The updated register is to contain all previously identified items, all transmittal numbers with their respective returned transmittal action codes, the Subcontractor's date of receipt and any revised Subcontractor's submittal dates in accordance with the latest approved progress schedule.
- (4) The Subcontractor shall make transmittals to the CM utilizing the CM's format. Refer to Exhibit 21, Subcontractor Submittal Form, for the required format. This form can be made available to the Subcontractor in electronic format.
- (5) Deviations: The Subcontractor shall certify, on the face of each transmittal letter to the CM, that it has reviewed each submittal in detail, that each is correct and in strict conformance with the subcontract drawings and specifications except as otherwise explicitly stated. Any variation from the subcontract requirements shall be highlighted on the submittals and must be accompanied by separate formal written request for deviation.
- (6) Installed Equipment Listing. Prior to the subcontract completion, the Subcontractor shall furnish a complete listing of installed equipment to include the information listed below. This listing shall be inclusive of any special test equipment and spare parts that may be required by the terms of this subcontract and which becomes the property of the CM on its completion.
  - i. Equipment name or nomenclature.
  - ii. Actual manufacturer's name.
  - iii. Manufacturer model number.
  - iv. Serial number, as applicable.
  - v. Normal nameplate data.
  - vi. Acquisition cost or market value.
- (7) Samples: Any samples required shall be delivered to the CM at least 30 calendar days before scheduled use. They shall be properly marked in accordance with requirements for vendor data marking described above. Prepare physical units of materials or products, including the following:
  - i. Comply with requirements in paragraph 6.2 , Subcontractor Quality Control, for mockups.
  - ii. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
  - iii. Samples for Verification: Submit full-size units or samples of size indicated, prepared from the same material to be used for the work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
  - iv. Preparation: Mount, display, or package samples in manner specified to facilitate review of qualities indicated. Prepare samples to match architect's sample where so indicated. Attach label on unexposed side that includes the following:
    - a. Generic description of sample.
    - b. Product name or name of manufacturer.
    - c. Sample source.
  - v. Additional Information: On an attached separate sheet, prepared on Subcontractor's letterhead, provide the following:
    - a. Size limitations.
    - b. Compliance with recognized standards.
    - c. Availability.
    - d. Delivery time.
  - vi. Submit samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.
    - a. If variation in color, pattern, texture, or other characteristic is inherent in the product represented by a sample, submit at least three sets of paired units that show approximate limits of the variations.
    - b. Refer to individual specification sections for requirements for samples that illustrate workmanship, fabrication techniques, and details of assembly, connections, operation, and similar construction characteristics.
  - vii. Disposition: Maintain sets of approved samples at project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

**Should testing be required, failure of any sample to pass this specified required test will be sufficient cause for deducting the actual cost incurred by the CM from the subcontract price.**

- (8) Certifications: Any certificate required for demonstrating proof of compliance of materials with specification requirements shall be executed in two copies and submitted to the CM. Each certificate shall be signed by an authorized officer of the manufacturing company and shall contain the name of the Subcontractor, location of the project, and the quantity and date or dates of shipment for delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall be signed by an authorized official of the laboratory and contain the name and address of the testing laboratory and

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the date or dates of the test to which the reports apply. Certification should not be construed as relieving the Subcontractor from furnishing satisfactory material if after tests are performed on selective samples, the material is found not to meet the specified requirements.

(9) Procurement Schedule and Status Report (PSSR). The PSSR shall be submitted with the first monthly submittal of the progress schedule. Every month thereafter, any update shall be accompanied by an updated PSSR. The information reported in the PSSR shall support the Progress Schedule construction activity start and anticipated completion dates.

- i. The PSSR shall show (as a line item), each individually identifiable piece of equipment for which the Subcontractor is responsible/ dependent, in order to complete work within its subcontract scope.
- ii. The following current information shall be incorporated as a minimum for each of the line items discussed in paragraph i above:
  - a. Equipment item identification number.
  - b. Equipment description.
  - c. Equipment supplier/manufacturer.
  - d. Equipment point of origin.
  - e. Purchase order number.
  - f. Purchase order date:
    - A = Actual
    - F = Forecasted
  - g. Most current shipment date:
    - A = Actual
    - F = Forecasted
  - h. Onsite date:
    - A = Actual
    - F = Forecasted
  - i. Required onsite date to support construction (based on construction activity scheduled date in most current progress schedule).

#### **D. Informational Submittals**

(1) General: Prepare and submit Informational Submittals required by other specification sections.

- i. Number of Copies: Submit one copy of each submittal to the CM unless otherwise indicated. Copies will not be returned.
- ii. Certificates and Certifications: Provide a notarized statement that includes signature of Subcontractor, testing agency, or design professional responsible for preparing certification. An officer of the Subcontractor shall sign certificates and certifications or other individual authorized to sign documents on behalf of the Subcontractor.
- iii. Test and Inspection Reports: Comply with requirements in paragraph 6.2, Subcontractor Quality Control.

(2) Informational submittals include but are not limited to:

- i. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- ii. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.
- iii. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific project.
- iv. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- v. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
- vi. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
- vii. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements.
- viii. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- ix. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements.
- x. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- xi. Research/Evaluation Reports: Prepare written evidence, from a model code organization, that product complies with building code in effect for project. Include the following information:
  - a. Name of evaluating organization.
  - b. Date of evaluation.
  - c. Time period when report is in effect.

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- d. Product and manufacturers' names.
  - e. Description of product.
  - f. Test procedures and results.
  - g. Limitations of use.
- xii. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in paragraph 10, Project Closeout.
- xiii. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- xiv. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
  - a. Preparation of substrates.
  - b. Required substrate tolerances.
  - c. Sequence of installation or erection.
  - d. Required installation tolerances.
  - e. Required adjustments.
  - f. Recommendations for cleaning and protection.
- xv. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
  - a. Name, address, and telephone number of factory-authorized service representative making report.
  - b. Statement on condition of substrates and their acceptability for installation of product.
  - c. Statement that products at project site comply with requirements.
  - d. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  - e. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  - f. Statement whether conditions, products, and installation will affect warranty.
  - g. Other required items indicated in individual specification sections.
- xvi. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- xvii. Material Safety Data Sheets: Submit information directly to CM.

#### **9.10 SCHEDULES AND REPORTS**

- A. This section specifies administrative and procedural requirements for various Critical Path Method (CPM) schedules and reports required for proper performance of the work.
- B. All costs incurred by the Subcontractor to correctly implement and update the schedule shall be borne by the Subcontractor and are part of this subcontract.
- C. Schedules required include:
  - (1) Preliminary 90-day CPM cost-loaded schedule and related narrative.
  - (2) Subcontract Construction Progress Schedule in CPM format and related narrative and cash flow projection curves.
  - (3) Weekly Work Schedule (three week look ahead).
  - (4) Submittal Schedule.
  - (5) Schedule of Inspections and Tests.
  - (6) As-built Schedule.
  - (7) Change Order proposals.
- D. Reports required include:
  - (1) Daily Construction Reports.
  - (2) Material Location Reports.
  - (3) Field Correction Reports.
  - (4) Special Reports.
  - (5) Monthly Progress Reports.
  - (6) Subcontractor Quality Control Reports.
- E. Definitions

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- (1) **Activity:** The fundamental unit of work in a project plan and schedule. Each activity has defined geographical boundaries and a detailed estimate of resources required to construct the task. Each activity is assigned a unique description, activity number, activity code, resource quantity, and a dollar value.
- (2) **CPM Network:** The structure of the schedule. The network is the representation, which defines the construction logic in terms of all of the activities with their logical dependencies.
- (3) **Subcontract CPM Schedule:** A cost and resource loaded CPM schedule covering the entire subcontract duration from Notice to Proceed (NTP) through Final Acceptance of the work.
- (4) **Subcontract Duration/Time:** The total time, in calendar days, identified in the Statement of Work, representing the period of performance for completion of all physical and administrative requirements under this subcontract and any authorized extension thereof.
- (5) **Critical Path:** The critical path is the longest connected chain of interdependent activities in a CPM network.
- (6) **Excusable Delay:** An unforeseeable delay, beyond the control of the Subcontractor, experienced due to no fault or negligence by the Subcontractor, its lower-tier Subcontractors, or suppliers.
- (7) **Predecessor Activity:** An activity, which precedes another activity in the network.
- (8) **Preliminary Schedule:** The CPM schedule submittal, used for determination of the first monthly progress payment only, covering all Subcontractor activities to be started and/or completed within the first 90 days of the subcontract duration.
- (9) **Resource Loading:** The labor hour and/or equipment quantity for the completion of an activity as scheduled.
- (10) **Successor Activity:** An activity, which follows another activity in the network.
- (11) **Total Float:** The number of days an activity can be delayed from its earliest start date without delaying the end of the project.

#### **F. Planning**

- (1) The Subcontract CPM Schedule shall show the total Subcontract Duration and intermediate milestones if applicable, as indicated in the Statement of Work,
- (2) The Subcontractor shall prepare a practical work plan to complete the work within the Subcontract Duration, and complete those portions of work related to each intermediate milestone date and other subcontract requirements. The Subcontractor shall generate a computerized cost and resource loaded CPM schedule in Precedence Diagram Method (PDM) format for the work.
- (3) Failure to include any work item required for performance of this subcontract shall not excuse the Subcontractor from completing all work within applicable completion dates, regardless of the CM's approval of the schedule.
- (4) Contract float belongs to the project. The Subcontractor shall not be entitled to any extension in Subcontract Time, or recovery for any delay incurred because of extensions in an early completion date, until all contract float is used or consumed and performance or completion of the work extends beyond the corresponding Subcontract Time. An early completion schedule is one which anticipates completion of all or specified parts of the work ahead of the corresponding Subcontract Time; as a prerequisite to a request for an increase in Subcontract Price or Subcontract Time, the Subcontractor shall adjust or remove any float suppression techniques, e.g., preferential sequencing (crew movements, equipment use, form reuse, etc.), extended durations, and imposed dates for the scheduling of work, not required by the subcontract. Use of restraint dates should be minimized and require approval by the CM.
- (5) The CM may refuse to recommend the whole or part of any payment if, in the CM's opinion, the Subcontractor's failure, refusal, or neglect to provide the required schedule information precludes a proper evaluation of the Subcontractor's progress. The CM may withhold from any payment a set-off, if in the CM's opinion, the Subcontractor's failure, refusal, or neglect to provide the required schedule information precludes a proper evaluation of whether or not the Subcontractor is prosecuting the work with the diligence that will ensure its completion within the Subcontract Time.
- (6) The CM reserves the right to assist the Subcontractor in the preparation of schedule submittals that are overdue by more than ten days, and the Subcontractor shall reimburse the CM for all associated costs. In the event the Subcontractor fails to pay those costs within 30 days after receipt of an invoice from the CM, the CM shall be entitled to a decrease in Subcontract Price or to withhold a set-off against any amounts recommended for payment. The CM's assistance with schedule preparation shall not relieve the Subcontractor of its responsibilities for determination for the methods, techniques, and sequences for the performance of the work.
- (7) These remedies for the Subcontractor's failure, neglect, or refusal to comply with requirements of this section are in addition to, and not in limitation of, those provided under other sections of the subcontract.
- (8) **Request for Proposals and Change Orders:** When changes to the work are proposed, the Subcontractor shall submit proposed revisions to the Subcontract CPM Schedule (See Exhibit 5a for format) identifying the changes and the schedule impact of the change. The proposed schedule revisions shall be submitted with the Subcontractor's change proposal for each proposed change. All authorized change orders shall be incorporated into the subsequent monthly update. Those change orders determined by the Subcontractor as having no schedule impact to milestones or subcontract completion date will require the identification and work plan of the change order tasks and of other affected activities.
- (9) In preparing the subcontract schedule, the Subcontractor must include any anticipated adverse weather days on all weather dependent activities. Weather-caused delays shall not result in any additional compensation to the Subcontractor.

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- (10) If the Subcontractor is found eligible for an extension of subcontract time, the CM will issue a modification extending the time for subcontract completion. The extension of time will be made on a calendar day basis.

#### **G. Submittals**

- (1) General: Subcontractor shall provide all schedule submittals on computer disk media as well as tabular printouts and graphic presentations. The latest version of Primavera<sup>™</sup> scheduling software shall be used. All costs incurred by the Subcontractor to correctly implement, computerize, and update the CPM schedule shall be borne by the Subcontractor and are included in the subcontract price. The number of copies of each submittal shall be one Floppy Disk (3.5" IBM formatted) and six copies of printouts.
- (2) Preliminary Schedule: The preliminary schedule and its related narrative as described in this section shall be submitted at the pre-construction meeting. Within seven calendar days, the CM will respond with approval or direction to change and the Subcontractor shall resubmit within seven calendar days.
- (3) Subcontract CPM Schedule: The subcontract CPM schedule and its related narrative as described in this section, shall be submitted along with the projected cash flow curve no later than 30 calendar days after Notice to Proceed. Within 15 calendar days, the CM will respond with approval or direction to change and the Subcontractor shall resubmit within 10 calendar days.
- (4) Weekly Work Schedule: The Subcontractor shall prepare and issue a weekly work schedule, to the CM prior to the weekly planning meeting. It shall describe the work activities for the three upcoming weeks by day, and use the Subcontractor's construction schedule as its critical path guide. It must describe the work activities down to the greatest detail required to explain the work plan, including location of major equipment. A brief written narrative describing work accomplished in the previous week and the planned work for the next week is to be included with this schedule. An order of magnitude estimate of the Subcontractor's current overall planned versus actual earned value percent complete must accompany this narrative.
- (5) Daily Progress Report: Submit duplicate copies to the CM by noon on the day following the date of actual progress.
- (6) Monthly Progress Report: All components of the Monthly Progress Report described in this section shall be submitted as attachments to the Subcontractor's monthly Application for Payment.
- (7) "As-Built" Subcontract Schedule: An as-built subcontract schedule accurately reflecting actual progress of work shall be submitted, as part of this subcontract's record documents.

#### **H. Preliminary Schedule**

- (1) The Subcontractor shall prepare a Preliminary Contract Value Cost-loaded Schedule covering the first 90 calendar days of the Subcontract Duration. The Preliminary Schedule format shall be the critical path method. The Preliminary Schedule is to be used for determination of the first monthly progress payment only. Payment requests after the first month require a complete and approved Subcontract CPM Schedule.
- (2) The Preliminary Schedule shall show all significant work activities that occur in the first 90 days, including planning, mobilization, procurement, fabrication, submittals, and construction. A comprehensive log of all submittals required by the subcontract shall accompany it. The preliminary schedule shall also include the Subcontractor's conceptual plan for completion within the Subcontract Duration.
- (3) The Preliminary Schedule shall be accompanied by a narrative, which describes the Subcontractor's approach to mobilization, procurement, and construction during the first 90 days. The narrative shall elaborate on the basis for durations, production rates, major equipment to be used, and shall identify all major assumptions used to develop the 90-day schedule.

#### **I. Subcontract CPM Schedule**

- (1) Scheduling Requirements: The Subcontract CPM Schedule shall be a computerized cost and resource loaded time-scaled CPM schedule in Precedence Diagramming Method (PDM) format that includes the following:

The order, sequence, and interdependence of all significant work items including construction, procurement, fabrication, and delivery of critical or special materials and equipment; utility interruption coordination; submittals and approvals of critical samples, shop drawings, procedures, or other reasonable requirements that may be requested by the CM.
- (2) Work by Oak Ridge National Lab (ORNL), or utility agencies, and other third parties that may affect or be affected by the Subcontractor's activities.
- (3) Adequate referencing of all work items to identify Subcontractors or other performing parties.
- (4) Job site activity durations that do not exceed 20 calendar days, except non-construction activities such as procurement and fabrication. Activities shall be broken down and defined into the following levels of detail: Cost values are not to exceed \$100,000. Activities are not to combine work located in separate structures, do not combine different specification divisions and do not combine work of different Subcontractors in a single activity. Also, do not combine rough in and finish work of the same trade in a single activity.
- (5) Activities that are cost and resource-loaded to show the direct craft labor hours required to perform the work, including work by Subcontractors.
- (6) A narrative that explains the basis for the Subcontractor's determination of construction logic, estimated durations, and resource allocation. The narrative shall include estimated quantities and production rates, hours per shift, workdays per



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week, and types, numbers, and capacities of major construction equipment to be used. A listing of non-working days and holidays incorporated in the schedule shall be provided.

(7) **Critical Path Activities:** The Subcontract CPM Schedule shall be prepared to include the data for the total subcontract and the critical path activities shall be identified, including critical paths for interim completion dates. Scheduled start or completion dates imposed on the schedule by the Subcontractor shall be consistent with subcontract milestone dates. Milestone dates shall be the scheduled dates specified in the Statement of Work, if applicable, and shall be prominently identified. The Subcontract CPM Schedule shall accurately show all as-built activities completed from the issuance of the Notice to Proceed up to the submittal of current schedule.

(8) **Assignment of Contract Value to Activities for Progress Payments**

- i. The Subcontractor shall assign cost to activities on the Subcontract CPM Schedule. Contract Value may be assigned to approved submittals, major material deliveries, and construction tasks.
- ii. Each activity's contract value shall reflect an accurate installed or completed value subject to approval by the CM.
- iii. The total contract value assigned to activities shall equal the total subcontract price.
- iv. Activities shall be coded as directed by the CM. See the WBS Coding Table in Exhibit 8.

(9) **Required Submittals:** On a monthly basis, the Subcontractor shall submit six copies of each of the following components of the Subcontract CPM Schedule:

- i. A time-scaled bar chart plot of the schedule network.
- ii. Computer-generated CPM Schedule Reports that contain the following data for each work item: activity identification number, description, resource loading, duration, early start and early finish calendar dates, late start and late finish calendar dates, and total float in calendar days. The reports shall also show the logic ties of successor and predecessor work items. The reports shall be sorted by total float, early start, Subcontractor, cost code, or other sorts as required by the CM.
- iii. The narrative described in sub-paragraph I (6) above.
- iv. A cash flow report showing monthly expenditures projected over the life of the subcontract. A cumulative cash flow curve based upon early and late schedule events shall also be submitted. These reports shall be derived from the Subcontract CPM Schedule.
- v. A copy of cost and schedule data on Electronic Media (3.5" IBM formatted floppy disk or CD disk).

(10) **Weekly Work Schedule:** The Subcontractor shall prepare and issued to the CM, a weekly work schedule prior to the weekly planning meeting. It shall describe the work activities for the three upcoming weeks by day.

#### **J. Daily Construction Reports**

(1) Prepare a daily construction report, recording the following information concerning events at the site and submit duplicate copies to the CM, by noon of the following workday.

- i. List of Subcontractors at the site.
- ii. Count of personnel at the site.
- iii. A list of all construction equipment on site.
- iv. High and low temperatures, general weather conditions.
- v. Accidents (refer to accident reports).
- vi. Meetings and significant decisions.
- vii. Unusual events (refer to special reports).
- viii. Stoppages, delays, shortages, losses.
- ix. Meter readings and similar recordings.
- x. Emergency procedures.
- xi. Orders and requests of governing authorities.
- xii. Change Orders received, implemented.
- xiii. Services connected, disconnected.
- xiv. Equipment or system tests and start-ups.
- xv. Partial Completions, occupancies.
- xvi. Substantial Completions authorized.

#### **K. Material Location Reports**

At weekly intervals, prepare a comprehensive list of materials delivered to and stored at the site. The list shall be cumulative, showing materials previously reported plus items recently delivered. Include with the list a statement of progress and delivery dates for all materials or items of equipment being fabricated or stored away from the building site. Submit copies of the list to the CM at weekly intervals.

#### **L. Field Correction Report**

When the need to take corrective action that requires a departure from the Subcontract Documents arises, prepare a detailed report including a statement describing the problem and recommended changes. Indicate reasons the Subcontract Documents cannot be followed. Submit a copy to the CM immediately.

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#### **M. Special Reports**

- (1) When an event of unusual or significant nature occurs at the site, prepare and submit a special report. List the chain of events, persons participating, and response by the Subcontractor's personnel, an evaluation of the results or effects, and similar pertinent information. Advise the CM in advance when such events are known or predictable.
- (2) Submit special reports directly to the CM within one day of an occurrence. Submit a copy to other parties affected by the occurrence.

#### **N. Monthly Progress Reporting**

- (1) General: Approval of the Subcontractor's monthly Application for Payment shall be contingent, among other factors, on the submittal of a satisfactory monthly schedule update.
- (2) Monthly schedule update meetings: Monthly schedule updates shall be the product of joint review meetings between the Subcontractor, CM, and active lower-tier Subcontractors. The joint review shall focus on actual progress for the preceding month, planned progress for the upcoming month supported by a Subcontractor prepared 4-Week Look-ahead Schedule, impact to schedule if any due to change notices issued, adverse weather, and any effected changes to the construction CPM schedule. The agreed upon progress, and changes, if any, shall be incorporated in the schedule update to be submitted. The update shall always represent the actual history of accomplishment of all activities, and will form the basis for the Subcontractor's application for payment.
- (3) Required Submittals: On a monthly basis the Subcontractor shall submit six copies of each of the following components of the Monthly Progress Report and a floppy disk copy.
  - (4) A monthly progress narrative, the content as prescribed by the CM, shall include as a minimum a description of overall progress for the preceding month, a critical path analysis, a discussion of problems encountered and proposed solution thereof, delays experienced and proposed recovery measures, a monthly reconciliation of weather impact to the status, impact of change orders, documentation of any logic changes, and any other changes made to the schedule since the previous monthly update.
  - (5) CPM schedule reports listing completed activities, activities in progress, and remaining activities in the format requested by the CM. For each activity the Subcontractor shall provide those details identified in sub-paragraph I. (4) above.
  - (6) Monthly and cumulative cash flow curves that show actual versus planned cash flow status.
  - (7) Documentation of delivered material in the form of paid invoices or other evidence that the Subcontractor has clear title for the material delivered.
  - (8) If critical activities of the schedule are delayed and such delay is inexcusable as defined in this section, the remaining sequence of activities and/or duration thereof shall be adjusted by the Subcontractor through such measures as additional manpower, additional shifts, or the implementation of concurrent operations until the schedule produced indicates work will be completed on schedule. Except, as provided elsewhere in the subcontract all costs incurred by the Subcontractor to recover from inexcusable delays shall be borne by the Subcontractor.
  - (9) The monthly Subcontract CPM Schedule update shall form the basis for the Subcontractor's Application for Payment. The progress payment for an activity shall be based on its agreed upon percentage of completion. On unit priced subcontracts, the approval of the Subcontractor's monthly requisition is contingent on the submittal of a satisfactory monthly schedule update; however, the basis of payment will be the actual measurement of CM accepted in-place units of work.

#### **O. Delays and Requests for Extension of Time**

- (1) The determination for an extension of subcontract time will be made by the CM in accordance with the Subcontract Provision "Changes."
- (2) The Subcontractor acknowledges and agrees that delays in activities, irrespective of the party causing the delay, which do not affect any critical activity or milestone dates on the CPM network at the time of the delay, shall not become the basis for an extension of subcontract time. The only basis for any extension of time will be the demonstrated impact of an excusable delay on the critical path. In demonstrating such impact, the Subcontractor shall provide adequate detail as required by the subcontract, and the Subcontractor must prove that:
  - (3) An event occurred.
    - i. The Subcontractor was not responsible for the event, in that the event was beyond the control of the Subcontractor, and was without fault or negligence of either the Subcontractor, lower-tier Subcontractors or suppliers, and the event was unforeseeable.
    - ii. The event was the type for which an excuse is granted in accordance with the "Delivery or Performance Schedule" provision of this subcontract.
    - iii. Activities on the critical path of the work were delayed.
    - iv. The event in fact caused the delay of the work.
    - v. The requested additional time is an appropriate and reasonable extension of subcontract time, given the actual delay encountered.

#### **P. As-Built Schedule**

After all subcontract work items are complete, and as a condition of final payment, the Subcontractor shall submit three copies of an "as-built" Subcontract Schedule showing actual start and finish dates for all work activities and milestones, based on the accepted monthly updates. These schedule submittals shall be in tabular and in time-scaled bar chart formats.

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**9.11 MATERIALS AND EQUIPMENT**

**A. Subcontractors' Materials and Equipment**

- (1) All equipment, material, and articles incorporated into the work covered by this subcontract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this subcontract, in accordance with applicable drawings and specifications, and installed to the satisfaction and with approval of the CM. References in the specifications to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Subcontractor may, to the extent it is approved by the CM, use any equipment, material, article, or process that, in the judgment of the CM, is equal to that named in the specifications, unless otherwise specifically provided in this subcontract.
- (2) The Subcontractor shall obtain CM's approval of machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Subcontractor shall furnish to the CM the name of manufacturer, model number, and other information concerning the performance, capacity, nature, and rating of the machinery and mechanical and other equipment. When required by this subcontract or by the CM, the Subcontractor shall also obtain the CM's approval of the material or articles that the Subcontractor contemplates incorporating into the work. When requesting approval, the Subcontractor shall provide full information concerning the material or articles. When directed to do so, the Subcontractor shall submit samples for approval at the Subcontractor's expense, with all shipping charges prepaid. Machinery, equipment, materials, and articles that do not have the required approval shall be installed or used at the risk of subsequent rejection.
- (3) All work under this subcontract shall be performed in a skillful and workmanlike manner and shall be first class. The CM may require, in writing, that the Subcontractor remove from the work any employee the CM deems incompetent, careless, or otherwise objectionable.

**B. Substitutes for Materials and Equipment**

- (1) In furtherance to the paragraph above, the following shall apply:
  - i. A substitute for an item of equipment, material, article, or patented process referenced by trade name, make, or catalog number shall not be used without the CM's written approval of the substitute concurring that it is an equal.
  - ii. When proposing a substitute as an equal, the Subcontractor shall submit to the CM a written request stating the nature of the proposed substitute and evidence such as drawings and manufacturer's data demonstrating the proposed substitute is of equal quality, composition, and service to the item specified. The written request shall also include any advantages of the substitution to the Owner.
  - iii. The CM reserves the right to have tests and/or analysis made to determine the substitute's acceptability. The cost of such tests shall be paid by the CM where the material is found to be an acceptable substitute and shall be borne by the Subcontractor in the event the material is found to be unacceptable.
  - iv. In proposing a substitute, the Subcontractor assumes responsibility for verifying the alternate item will fit within the space available. All changes or modifications for accommodation of the substitute, including the cost thereof, shall be borne by the Subcontractor. Detailed drawings of such changes shall be submitted to the CM for approval.
  - v. Proposed substitutes shall not be used in the work prior to written authorization by the CM.
  - vi. The CM may reject an otherwise acceptable substitute if such substitute will result in the extension of the subcontract completion date.

**C. Shipment of Subcontractor Supplied Equipment and Materials**

- (1) Subcontractor shall be responsible for arranging all shipments of materials and equipment to the site of the work and shall consign all such shipments to itself as consignee at the project shipping address, freight fully prepaid.

Subcontractor shall be responsible for making demurrage agreements and settlement with carriers for its shipments.
- (2) Subcontractor shall advise the CM forty-eight hours in advance of all major shipments of Subcontractor's equipment and materials and shall coordinate with the CM the arrival and unloading of equipment.

Subcontractor shall promptly unload its shipments and promptly release carrier's equipment.
- (3) In the event Subcontractor may be unable to promptly unload its shipment, Subcontractor shall notify the CM of such inability not less than five working days in advance of arrival.
  - i. The CM, at its option, may unload or arrange for others to unload such shipment for the account and risk of Subcontractor.
  - ii. Subcontractor shall promptly pay the CM for such costs of unloading.

**D. CM-Furnished Property**

- (1) The CM shall deliver to the Subcontractor at the time and locations stated in this subcontract, the CM-furnished property (CM-furnished property is the same as Government Property) described in the schedule or specifications. If that property, suitable for its intended use, is not delivered to the Subcontractor, the CM shall equitably adjust affected provisions of this subcontract in accordance with the Changes clause when:
  - i. The Subcontractor submits a timely written request for an equitable adjustment.
  - ii. The facts warrant an equitable adjustment.

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- (2) Title to CM-furnished property shall remain with the Owner. The Subcontractor shall use the CM-furnished property, shall maintain adequate property control records in accordance with sound industrial practice, and will make such records available for CM or Owner inspection at all reasonable times.
- (3) Upon delivery of CM-furnished property to the Subcontractor, the Subcontractor assumes the risk and responsibility for its loss or damage, except:
  - i. For reasonable wear and tear.
  - ii. To the extent property is consumed in performing this subcontract.
  - iii. As otherwise provided for by the provisions of this subcontract.
- (4) Upon completing this subcontract, the Subcontractor shall follow the instructions of the CM regarding the disposition of all CM-furnished property not consumed in performing this subcontract or previously delivered to the CM. The Subcontractor shall prepare for shipment, deliver, f.o.b. origin, or dispose of the Owner property, as may be directed by the CM. The net proceeds of any such disposal shall be credited to the subcontract price or shall be paid to the CM as directed by the CM.
- (5) If the Subcontractor transfers Owner property to the possession and control of a sub-Subcontractor, the transfer shall not affect the liability of the Subcontractor for loss or destruction of, or damage to, the property. However, the Subcontractor shall require the sub-Subcontractor to assume the risk of, and be responsible for any loss or destruction of, or damage to, the property while in the sub-Subcontractor's possession or control, except to the extent that the Subcontractor, with the advance approval of the CM, relieves the sub-Subcontractor from such liability. In the absence of such approval, the sub-subcontract shall contain appropriate provisions requiring the return of all Owner property in as good condition as when received, except for reasonable wear and tear or for its use in accordance with the provisions of this subcontract.

#### **E. Control of Materials Furnished by the CM**

- (1) All materials and equipment furnished by the CM shall be unloaded and received by Subcontractor in the presence of the CM's authorized representative and quantities thereof shall be checked jointly by Subcontractor and the CM or his appointed representative. Subcontractor shall record delivery and acceptance of all such materials and equipment in writing and Subcontractor shall evidence receipt and acceptance of such materials and equipment by signing forms satisfactory to the CM.
- (2) Subcontractor shall carefully note any visible damage to CM furnished materials and equipment prior to Subcontractor's acceptance of delivery.
  - i. After Subcontractor has accepted delivery of such materials and equipment, it shall assume full responsibility for any loss or damage of such materials and equipment.
  - ii. Subcontractor shall notify CM of any materials and equipment supplied to Subcontractor by the CM that are surplus.
- (3) Subcontractor shall notify CM of materials and equipment supplied by the CM in sufficient time for CM to furnish said materials or equipment in advance of Subcontractor's need or have Subcontractor purchase these items. In the event of misfit of CM furnished materials or equipment, Subcontractor shall promptly notify CM of such misfit and will take all reasonable steps to avoid standby time due to such misfit and to continue to progress with other portions of work pending correction of such misfit.

#### **F. Protection of Materials, Equipment, and Work**

- (1) Subcontractor shall at all times in accordance with the best practices and at no additional cost to CM, provide protection for all materials and equipment used by Subcontractor in execution of the work from damage or loss due to weather, fire, theft, unexplained disappearance, or other similar casualty.
- (2) Subcontractor shall at all times in accordance with the best practices and at no additional cost to CM, protect from damage due to Subcontractor's operations all equipment and materials (whether stored or installed), paving, structures, and any and all other items on the jobsite belonging to Owner, CM, or others.

#### **G. Title to, Care and Custody, and Control of Materials and Equipment**

- (1) Good and clear title to all materials and equipment furnished by Subcontractor under subcontract for the work shall, except as expressly provided otherwise in the subcontract agreement, pass to Owner upon incorporation into the permanent plant. Subcontractor shall ensure that all vendors and suppliers from which Subcontractor obtains materials, supplies, and equipment do not retain, encumber, nor reserve title to such items.
- (2) Notwithstanding provisions of sub-paragraph E (1) above, custody and control of Subcontractor's work incorporated into the permanent plant shall remain with Subcontractor until such work has been accepted in writing by the CM and shall thereupon pass to the Owner unless the CM or Owner notify Subcontractor in writing that such care, custody, and control is assumed by the CM or Owner at an earlier date. The taking of possession of such work pursuant to sub-paragraph F, Protection of Materials Equipment and Work, shall not constitute the assumption of care, custody, and control of such work by the CM or Owner until such time as the work has either been accepted in writing by the CM or Subcontractor has been notified as set forth herein.

#### **H. Products**

- (1) Products: Means new material, machinery, components, equipment, fixtures, and systems forming work.
  - i. Does not include machinery and equipment used for preparation, fabrication, conveying, and erection of work.

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- ii. Products may also include existing materials and components required for reuse.
- (2) Do not use materials and equipment removed from existing premises, except as specifically permitted by Contract Documents.
- (3) Provide interchangeable components of same manufacturer, for similar components.
- I. Transportation and Handling
  - (1) Transport and handle products in accordance with manufacturer's instructions.
  - (2) Upon delivery to job site, promptly inspect shipments to assure products comply with requirements, quantities are correct, and are undamaged.
  - (3) Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.
- J. Product Options
  - (1) Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.
  - (2) Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications. No substitutions allowed to base bid.
  - (3) Products Specified by Naming One Manufacturer with Statement "No Substitution:" Products of manufacturers named and meeting specifications, no substitutions allowed to base bid.
  - (4) Products Specified by Naming One or More Manufacturers with an "Or Equal" clause: Products of manufacturers named and meeting specifications. No substitutions allowed to base bid.

#### **9.12 OPERATION AND MAINTENANCE MANUAL DATA**

- A. This Section includes requirements for Operation and Maintenance (O&M) manuals, including the following:
  - (1) Preparing and submitting operation and maintenance manuals for building operating systems and equipment.
  - (2) Project record document submittal.
    - An inventory of each component and piece of equipment requiring operations and maintenance documentation identified in the specification and contract drawings shall be documented and provided to the Construction Manager, CM, in worksheet format. Use Operation and Maintenance Manual Data form (see Exhibit 23) to identify systems and sub-systems. Use the O&M Inventory Information form (see Exhibit 24) for the format that shall be used to document O&M equipment inventory information.
- B. Related references for submitting information for operation and maintenance manuals:
  - (1) Appropriate Sections of Divisions 2 through 16 of the Specifications specify special operation and maintenance data requirements for specific pieces of equipment or building operating systems.
  - (2) Format for O&M Inventory Information (see Exhibit 24).
- C. Quality Assurance
  - (1) Maintenance Manual Preparation: In preparation of maintenance manuals, use competent/certified personnel thoroughly trained and experienced in operation and maintenance of equipment or systems involved.
    - i. Provide O & M manuals prepared in accordance with this Section.
    - ii. Where specifications require written instructions, use personnel skilled in technical writing where necessary for communication of essential data.
    - iii. Where specifications require drawings or diagrams, use personnel skilled in preparing drawings clearly in an understandable format.
- D. Submittals
  - (1) Submittal Schedule: Comply with the following schedule for submitting operation and maintenance manuals:
    - i. Ninety days prior to Substantial Completion, when each installation that requires operation and maintenance manuals is nominally complete, submit 2 draft copies of each manual to the CM for review. Include a complete index or table of contents for each manual. All O&M submittals shall be manufacturer's original publications. Photocopies will not be accepted. Manuals shall be organized by system, as described in 9.13 "O&M Manual Sections By Building System." The CM will return 1 copy of the draft with comments within 30 days of receipt.
    - ii. Submit 1 copy of data in final form at least 30 days before final inspection. The CM will return this copy within 15 days after final inspection, with comments.
    - iii. After final inspection, make corrections or modifications to comply with the CM's comments. Submit the specified number of copies of each approved manual to the CM within 15 days of receipt of the CM's comments.
    - iv. Electronic imaging. Provide either scanned images or electronic files of O&M documentation in addition to the paper copies specified. Index scanned images and/or electronic files to facilitate organizing the electronic information in the same format as the final approved paper copies. Provide electronic information on CD-ROM.
  - (2) Form of Submittal: Prepare operation and maintenance manuals in the form of an instructional manual for use by the Government's operating personnel. Organize into sets in sizes as indicated. Organize O&M information by system as described in 9.13 "O&M Manual Sections by Building System," and by Data Packages as describe in this Section.

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- i. Binders: For each manual, provide heavy-duty, commercial-quality, 3-ring, vinyl-covered, loose-leaf binders, maximum of 3 inches thick, sized to receive 8-1/2-by-11- inch paper. Provide a clear plastic sleeve on the spine and front cover to hold labels describing contents. Provide 3-hole punched, heavy-duty sheet protectors to hold folded oversized documents. Do not fill binders to more than 1/2 capacity.
    - a. Where multiple binders are necessary to accommodate data, correlate data in each binder into related groupings according to the Project Manual table of contents. Cross-reference other binders where necessary to provide essential information for proper operation or maintenance of the piece of equipment or system.
    - b. Identify each binder on front and spine, with the printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter covered. Indicate volume number for multiple volume sets of manuals.
  - ii. Dividers: Provide heavy paper dividers with clear celluloid-covered tabs for each separate Section. Mark each tab to indicate contents. Provide a description of the Product and major parts of equipment included in the Section on each divider.
  - iii. Text Material: Provide the manufacturer's standard printed material. If manufacturer's standard printed material is not available, provide specially prepared data, computer generated, on 8-1/2-by-11 inch, 20-lb/sq. ft. white bond paper.
  - iv. Drawings: Provide reinforced, punched binder tabs on drawings and bind with text. Where oversize drawings are necessary, fold drawings to the same size as text pages, and inserted in a 3-hole punched, heavy-duty plastic sheet protector.
  - v. Photos: Provide required photographs in digital and paper format. Photos shall be adequately labeled, printed, and placed in 3-hole punch plastic protector sheets. Photos in electronic format shall be provided on floppy disks or CD-ROM.
  - vi. Software: Provide 3-hole punch plastic protector sheets for labeled software media, such as electronic photographs, text and equipment inventory worksheets.
- (3) Submit five copies of each manual, in final form, on equipment and systems to the CM for distribution. Include information for each unit of equipment, each operating system, and each electric and electronic system.

#### **E. Manual Content**

- (1) Include information required by the individual Specification Sections in the form of data packages. Data packages shall be developed for each building component, piece of equipment and system based on level of complexity and as specified in the individual Specification Sections. Data packages shall be provided in accordance with 9.13 "Schedule of Operation & Maintenance Data Packages." Applicability of data packages is as follows:
- i. Data package 1: General building materials and components such as sealants, light fixtures, door hardware, etc.
  - ii. Data package 2: Simple operating components such as valves, hatches, louvers, and plumbing fixtures
  - iii. Data package 3: Minor equipment such as small pumps and fans
  - iv. Data package 4: Major and complex equipment such as AHU's, package AC units, large pumps & motors, chillers, boilers, switch gear, motor control centers, elevators, control systems, engine generators, harmonic cancellation systems, fire alarm systems, etc.
- (2) Data Package information shall be provided as follows:
- i. Data package 1:
    - a. Manufacturer's product information including manufacturer's installation instructions
    - b. Supplier information
    - c. Warranty information
  - ii. Data Package 2:
    - a. Manufacturer's product information including manufacturer's installation instructions
    - b. Supplier information
    - c. Warranty information
    - d. Safety precautions
    - e. Maintenance & repair procedures
    - f. Replacement parts identification & installation
  - iii. Data Package 3:
    - a. Manufacturer's product information including manufacturer's installation instructions
    - b. Supplier information
    - c. Warranty information
    - d. Safety precautions
    - e. Maintenance & repair procedures
    - f. Printed preoperational and installation storage, operation and maintenance instructions
    - g. Replacement parts identification & installation
    - h. Normal operating instructions
    - i. Lubrication data
    - j. Preventive maintenance plan/schedule
    - k. Alignment, adjusting and checking information
    - l. Removal and replacement instructions
    - m. Parts identification
    - n. Wiring diagrams
  - iv. Data Package 4:

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- a. Equipment or System Description including:
      - 1. Equipment or System Function
      - 2. Operating characteristics
      - 3. Safety precautions
      - 4. Environmental and limiting conditions
      - 5. Performance curves
      - 6. Engineering data and tests
      - 7. Complete nomenclature and number of replacement parts
    - b. Supplier and vendor information
  - v. Manufacturer's Information including:
    - a. Manufacturer's installation instructions
    - b. Assembly drawings and diagrams required for maintenance and installation
    - c. List of items recommended to be stocked as spare parts
    - d. Wiring and control diagrams
  - vi. Maintenance Procedures detailing essential maintenance procedures including:
    - a. Printed preoperational and installation storage, operation and maintenance instructions
    - b. Routine operations
    - c. Troubleshooting guide & diagnostic techniques
    - d. Disassembly, repair and reassemble
    - e. Alignment, adjusting and checking
    - f. Lubrication data
    - g. Consumable information such as belts and filters
    - h. Testing equipment & special tool information
  - vii. Operating Procedures including:
    - a. Start up and shut down procedures
    - b. Equipment or system break-in
    - c. Routine and normal operating instructions
    - d. Regulation and control procedures
    - e. Emergency procedures
    - f. Summer and winter operating instructions
    - g. Required sequences for electric or electronic systems
    - h. Special operating instructions
    - i. Operator service requirements
- (3) Software: Specified program listings, interface control documents, source code listing, and copies of the operating programs on media appropriate to use as backup for the system software. Include instructions for loading the operating software onto the system.
- (4) Additional requirements:
- i. For each system, general system or equipment description. Include size, weight, power consumption, power requirements, and outline drawings.
  - ii. Copies of applicable shop drawings, product data, drawings, and schematics for the equipment systems.
  - iii. Theory of Operation: Description of technical operating characteristics of the system and individual equipment using standard phraseology; descriptions of interface requirements including operating protocols; equipment displays and screens; make reference to installation drawings, schematics and equipment displays as required for technical understanding.
- (5) Identification Legends:
- i. Piping and equipment: Provide a computer-generated legend to correspond with identification devices installed on piping and equipment. List the identifying device, its location, a brief description of the devices function, and the I.D. number.
  - ii. Panel boards and switchboards: Provide a computer-generated legend for each panel board and switchboard installed in the project. This information shall be a duplicate of the legend placed in the panel board.
  - iii. Valve Tags and Schedule: Provide a computer-generated schedule of all valve tags. Include valve type, manufacturer, equipment location and size for all newly installed valves.
- (6) Organize the manual into separate Sections, by system as described in "O&M Manual Sections By Building System", for each system or piece of related equipment.
- (7) Title Page: Provide a title page in a transparent, plastic envelope as the first sheet of each manual. Provide the following information:
- i. Subject matter covered by the manual
  - ii. Name and address of the Project
  - iii. Date of submittal
  - iv. Name, address, and telephone number of the Contractor
  - v. Name and address of the Architect
  - vi. Cross-reference to related systems in other operation and maintenance manuals
- (8) Table of Contents: After the title page, include a computer-generated table of contents for each volume, arranged systematically according to the Project Manual format. Include a list of each product incorporated, identified by product

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name and other appropriate identifying symbol and indexed to the content of the volume. Each data package shall be tabbed and separately listed in the Table of Contents. Where multiple volumes are required to accommodate data, provide a comprehensive table of contents for all volumes in each volume of the set.

- (9) General Information: Provide a general information section immediately following table of contents, listing each product included in the manual, identified by product name. Under each product, list the name, address, and telephone number of the Subcontractor or installer and the maintenance contractor where applicable. Clearly delineate the extent of responsibility of each of these entities. Include a local source for replacement parts and equipment.
- (10) Product Data: Where the manuals include manufacturer's standard printed data, include only sheets that are pertinent to the part or product installed. Mark each sheet to identify each part or product included in the installation. Where the project includes more than one item in a tabular format, identify each item, using appropriate references from the contract documents. Identify data that is applicable to the installation, and delete references to information that is not applicable.
- (11) Written Text: Prepare written text to provide necessary information where manufacturer's standard printed data are not available, and the information is necessary for proper operation and maintenance of equipment or systems. Prepare written text where it is necessary to provide additional information or to supplement data included in the manual. Organize text in a consistent format under separate headings for different procedures. Where necessary, provide a logical sequence of instruction for each operation or maintenance procedure.
- (12) Drawings: Provide specially prepared drawings where necessary to supplement manufacturer's printed data to illustrate the relationship of component parts of equipment or systems or to provide control or flow diagrams. Coordinate these drawings with information contained in project record drawings to ensure correct illustration of the completed installation.
- (13) Warranties, Bonds, and Service Contracts: Provide a copy of each warranty, bond, or service contract tabbed in a separate binder. Provide written data outlining procedures to follow in the event of product failure. List circumstances and conditions that would affect the validity of a warranty or bond.
- (14) O&M Manual Sections by Building System.

SECTION	DESCRIPTION
1	General Building Information
2	Grounds & Pavements
3	Exterior Closure
4	Roofing
5	Interior Construction
6	Interior Finishes
7	Conveying Systems
8	Plumbing Systems
9	HVAC Systems
10	Life/Safety
11	Electrical Systems
12	Communication Systems
13	Building Automation Systems

#### **9.13 DEMONSTRATION AND TRAINING**

- A. This Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
- (1) Demonstration of operation of systems, subsystems, and equipment.
  - (2) Training in operation and maintenance of systems, subsystems, and equipment.
- B. Related Sections include the following:
- (1) Division 1 Section "Project Coordination Meetings" for requirements for pre-instruction conferences.
  - (2) Division 1 Section "Operation and Maintenance Manual Data" for required equipment, component and system information for O&M personnel.
- C. Submittals
- (1) Instruction Program: Submit three copies of outline of instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module. Instruction program shall be based upon and utilize the approved operation and maintenance manual data. At completion of training, submit one complete training manual for Owner's use.
  - (2) Attendance Record: For each training module, submit list of participants and length of instruction time.
  - (3) Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.
  - (4) Demonstration and Training Videotape: Each training session shall be video taped. Submit two copies at end of each training module.



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- (5) Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
  - (6) Instructor Qualifications: A factory-authorized service representative, complying with requirements in Division 1 Section "Quality Requirements", experienced in operation and maintenance procedures and training.
  - (7) Pre-instruction Conference: Conduct conference at Project site. Review methods and procedures related to demonstration and training including, but not limited to, the following:
    - i. Inspect and discuss locations and other facilities required for instruction including classroom training and field training.
    - ii. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
    - iii. Review required content of instruction.
    - iv. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.
    - v. Review procedure for video taping instruction.
- D. Coordination
- (1) Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations.
  - (2) Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
  - (3) Coordinate content of training modules with content of approved operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Construction Manager
- E. Instruction Program
- (1) Program Structure: Develop an instruction program as applicable to the individual contracts. Include individual training modules for each system and equipment not part of a system, as required by individual Specification Sections.
  - (2) Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable:
    - i. Basis of System Design, Operational Requirements, and Criteria: Include the following:
      - a. System, subsystem, and equipment descriptions.
      - b. Performance and design criteria if Contractor is delegated design responsibility.
      - c. Operating standards.
      - d. Regulatory requirements.
      - e. Equipment function.
      - f. Operating characteristics.
      - g. Limiting conditions.
      - h. Performance curves.
    - ii. Documentation: Review the following items in detail:
      - a. Operations manuals.
      - b. Maintenance manuals.
      - c. Project Record Documents.
      - d. Identification systems.
      - e. Warranties and bonds.
      - f. Maintenance service agreements and similar continuing commitments.
    - iii. Emergencies: Include the following, as applicable:
      - a. Instructions on meaning of warnings, trouble indications, and error messages.
      - b. Instructions on stopping.
      - c. Shutdown instructions for each type of emergency.
      - d. Operating instructions for conditions outside of normal operating limits.
      - e. Sequences for electric or electronic systems.
      - f. Special operating instructions and procedures.
    - iv. Operations: Include the following, as applicable:
      - a. Startup procedures.
      - b. Equipment or system break-in procedures.
      - c. Routine and normal operating instructions.
      - d. Regulation and control procedures.
      - e. Control sequences.
      - f. Safety procedures.
      - g. Instructions on stopping.
      - h. Normal shutdown and re-start instructions.
      - i. Operating procedures for system, subsystem, or equipment failure.
      - j. Seasonal and weekend operating instructions.
      - k. Required sequences for electric or electronic systems.
      - l. Special operating instructions and procedures.

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- v. Adjustments: Include the following:
    - a. Alignments.
    - b. Checking adjustments.
    - c. Noise and vibration adjustments.
    - d. Economy and efficiency adjustments.
  - vi. Troubleshooting: Include the following:
    - a. Diagnostic instructions.
    - b. Test and inspection procedures.
    - c. Maintenance: Include the following:
  - vii. Inspection procedures:
    - a. Types of cleaning agents to be used and methods of cleaning.
    - b. List of cleaning agents and methods of cleaning detrimental to product.
    - c. Procedures for routine cleaning
    - d. Procedures for preventive/predictive maintenance.
    - e. Procedures for routine maintenance.
    - f. Instruction on use of special tools.
  - viii. Repairs: Include the following:
    - a. Diagnosis instructions.
    - b. Repair instructions.
    - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
    - d. Instructions for identifying parts and components.
    - e. Review of spare parts needed for operation and maintenance.
- F. Preparation
- (1) Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a combined training manual.
  - (2) Set up instructional equipment at instruction location.
- G. Instruction
- (1) Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
  - (2) Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain equipment and systems.
  - (3) The Construction Manager will furnish Contractor with names and positions of participants.
  - (4) Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.  
  
Schedule training through the Construction Manager with at least 30 days' advance notice.
  - (5) Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of an oral performance-based test.
  - (6) Cleanup: Collect used and leftover educational materials. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.
  - (7) Record of Training: Provide a record of training. Record shall include list of attendees, student evaluation of training, evaluation of student comprehension at the end of training and recommendations for follow-on training.

## **10. CONSTRUCTION SITE OPERATIONS**

### **10.1 HOURS OF WORK**

The normal hours of work on Owner sites (unless otherwise stated) are from 7 a.m. to 4 p.m., Monday through Friday, excluding holidays. Access to work sites may be restricted to these hours and days. For work during other than normal hours of work, the Subcontractor shall submit, in writing, for the CM's approval, a notice of any period of scheduled work at times other than the normal hours of work specified above. This notice shall be submitted no less than five work-days prior to each period of work scheduled at times other than normal hours of work including federal holidays.

### **10.2 SITE INVESTIGATIONS AND CONDITIONS AFFECTING THE WORK**

- A. Subcontractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to the (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) availability of labor, water, electric power, and roads; (3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) conformation and conditions of the ground; and (5) character of equipment and facilities needed preliminary to and during work performance. Subcontractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by CM, as well as from the drawings and specifications made a part of this subcontract. Any failure of Subcontractor to take the actions described and

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acknowledged in this paragraph will not relieve Subcontractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to CM.

- B. CM assumes no responsibility for any conclusions or interpretations made by Subcontractor based on information made available by CM. Nor does the Owner's Representative or Owner assume responsibility for any understanding reached or representation made concerning conditions that can affect the work by any of its officers or agents before the execution of this subcontract, unless that understanding or representation is expressly stated in this subcontract.

#### **10.3 DIFFERING SITE CONDITIONS**

- A. The Subcontractor shall promptly, and before the conditions are disturbed, give a written notice to the CM of --
- (1) Subsurface or latent physical conditions at the site which differ materially from those indicated in this subcontract; or
  - (2) Unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the subcontract.
- B. The CM shall investigate the site conditions promptly after receiving the notice. If the conditions do materially so differ and cause an increase or decrease in the Subcontractor's cost of, or the time required for, performing any part of the Work under this subcontract, whether or not changed as a result of the conditions, an equitable adjustment may be made under this clause and the subcontract modified in writing accordingly.
- C. No request by the Subcontractor for an equitable adjustment to the subcontract under this clause shall be allowed, unless the Subcontractor has given the written notice required; provided, that the time prescribed in paragraph A of this clause for giving written notice may be extended by the CM.
- D. No request by the Subcontractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this subcontract.
- E. The Subcontractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the Work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the Work or its cost, including but not limited to
- (1) conditions bearing upon transportation, disposal, handling, and storage of materials;
  - (2) the availability of labor, water, electric power, and roads;
  - (3) uncertainties of weather, river stages, tides, or similar physical conditions at the site;
  - (4) the conformation and conditions of the ground; and
  - (5) the character of equipment and facilities needed preliminary to and during work performance.
- F. The Subcontractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the CM, as well as from the drawings and specifications made a part of this subcontract. Any failure of the Subcontractor to take the actions described and acknowledged in this paragraph will not relieve the Subcontractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the CM.
- G. The CM assumes no responsibility for any conclusions or interpretations made by the Subcontractor based on the information made available by the CM. Nor does the CM assume responsibility for any understanding reached or representation made concerning conditions, which can affect the Work by any of its officers or agents before the execution of this subcontract, unless that understanding or representation is expressly stated in this subcontract.

#### **10.4 CLEANING UP**

The Subcontractor shall at all times, keep the Work area, including storage areas, free from accumulations of waste materials daily. Before completing the Work, the Subcontractor shall remove from the Work and site any rubbish, tools, scaffolding, equipment and materials that are not the property of the Owner, Owners Representative or the CM. Upon completing the Work, the Subcontractor shall leave the Work area in a clean, neat, and orderly condition satisfactory to the CM. Failure to do so can result in a final payment delay as well as other remedies available elsewhere in the contractual documents. The CM reserves the right to clean up should the Subcontractor fail to comply and deduct associated costs from monies due or to become due the Subcontractor.

#### **10.5 WARRANTY**

The Subcontractor represents and warrants that all goods and services shall strictly conform to the CM's subcontract, specifications, drawings, and descriptions. Additionally, services shall be performed in a thorough workmanlike manner, exercising the degree of skill, care, and diligence consistent with highest industry standards. If the Subcontractor fails to perform to these standards, it shall, at the CM's election and without additional cost, accept returned goods for credit or refund, or re-perform and correct any substandard work; and reimburse the CM for all direct, incidental, consequential costs or damages resulting from its failure. All goods shall be merchantable, of highest quality, fit for their intended purpose, and free from defects (whether patent or latent) for a period of one year from the date of the CM's acceptance, or eighteen months after shipment, whichever is longer. All replaced goods shall be subject to the provisions of this subcontract. The Subcontractor further represents and warrants that goods conveyed shall be free and clear of all liens and encumbrances, and that it has secured the right to own, sell, or use goods delivered under this subcontract. This warranty applies only if goods are used under the conditions specified by the CM, and they will be properly installed, operated, and maintained. If the

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warranted performance is not met, and documented by tests reported to the Subcontractor within the warranty period, the Subcontractor shall make necessary changes, adjustments, or replacements at no cost to the CM, Owners Representative, or the Owner. Warranties, express and implied, together with service warranties and guarantees, shall be for the benefit of the CM, its successors, and customers, and shall survive inspection, delivery, or payment. The CM's exercise of any right or remedy shall not preclude its exercising any other right or remedy available under the law.

- A. The CM shall notify the Subcontractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage.
- B. If the Subcontractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the CM shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Subcontractor's expense.
- C. With respect to all warranties, expressed or implied, from sub-Subcontractors of all tiers, manufacturers, or suppliers for work performed and materials furnished under this subcontract, the Subcontractor shall:
  - (1) Obtain all warranties that would be given in normal commercial practice and required by technical specifications.
  - (2) Require all warranties to be executed, in writing, for the benefit of the CM and Owner.
  - (3) Enforce all warranties for the benefit of the CM and Owner, if directed by the CM.
  - (4) Identify differences in warranty commencement dates.
- D. The Subcontractor recognizes that because of operational requirements of the Owner, it may become necessary for corrective work in fulfillment of the warranty be performed by the CM, Subcontractor, or otherwise. The Subcontractor agrees that upon a determination by the CM that the Owner's operational requirements are such that immediate corrective action must be taken, and upon notice thereof to the Subcontractor, the CM will proceed with the corrective work and the Subcontractor shall be liable for all costs occasioned by the CM in the performance of the corrective work.
- E. The right of the CM to remedy any failure, defect, or damage under this section is in addition to the right of the CM to remedy any failure, defect, or damage pursuant to the subcontract Warranty Provision.
- F. Costs occasioned by the CM in performing corrective work under this section or pursuant to the subcontract Warranty Provision shall include overhead costs to the CM determined by the then current overhead rate utilized by the CM in pricing or costing work that is performed by the CM.

#### **10.6 SUBCONTRACTOR PERSONNEL AND EQUIPMENT**

Subcontractor shall be responsible for maintenance of all equipment. Necessary ancillary equipment will also be kept in good repair and operating condition to ensure that Subcontractor's operations shall proceed in an efficient and effective manner. Equipment substitutions may be made only with consent of the CM.

#### **10.7 RESPONSIBILITY OF CONTRACTORS**

- A. Subcontractor shall cooperate with CM, Owners Representative and the Owner and other Subcontractors in scheduling and performing the Work to avoid conflict, delay, or interference in the Project or in the work of others.
- B. If any part of the Subcontractor's Work depends on proper execution of the work by other contractor, Subcontractor, CM or the Owner or Owners Representative, the Subcontractor shall inspect and promptly report to the Company any apparent discrepancies or defects in such other party's work that render it unsuitable for follow-on Work by Subcontractor. Failure of the Subcontractor to so inspect and report defective or unsuitable work by others shall constitute an acceptance of the preceding work as fit and proper to receive Subcontractor's Work except as to hidden defects in preceding work which do not develop until after the execution of the Subcontractor's Work.
- C. Should the Subcontractor cause damage to the work or property of any other Subcontractor on the project, the Subcontractor shall, upon due notice, settle with such other Subcontractor by agreement or arbitration.

#### **10.8 SITE ACCESS/RESTORATION/CONDITIONS**

- A. **LEGAL ACCESS:** The CM will be responsible for and provide legal access to the site. It will be the Subcontractor's responsibility to comply with the terms of the access.
- B. **SITE ACCESSIBILITY:** It will be the Subcontractor's responsibility to determine accessibility to the site with equipment proposed for use on the project. Some adjustment in site locations can and will be made, upon the approval of the CM, to avoid obstructions or to allow better accessibility for equipment.
- C. **SITE RESTORATION:** Site restoration will be accomplished by the Subcontractor (in the event the Subcontractor's vehicle, equipment, or personnel disturb the site) in accordance with the subcontract and upon completion of work at the site or as further directed by the CM.

#### **10.9 SPECIAL TRAINING/TESTING REQUIREMENTS**

Any special training or testing requirements applicable to this subcontract have been identified under the ES&H Plan or within the Summary of Work or Technical Specifications applicable to this subcontract.

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#### **10.10 WORK BOUNDARIES, JOINT OCCUPANCY, AIR QUALITY and NOISE CONTROL**

- A. Work Area Boundaries: The limits of the construction work area are shown on the site plan. The Subcontractor shall keep all work activities within the limits of this area.
- B. Joint-Occupancy: The work under this subcontract may be accomplished under joint occupancy. Joint occupancy consists of the common use of the area by the Subcontractor, CM, Owners Representative, Owner and their Subcontractors. In the event of a dispute between the Subcontractor and other Subcontractors of the CM, Owners Representative, or Owner regarding the priority of the use of the area, the decision of the PM shall govern. The Subcontractor shall provide access to each jointly occupied area. Joint occupancy does not constitute possession or acceptance by the CM, Owner Representative or Owner. No additional compensation will be made for actions resulting from this required cooperation. The Subcontractor may be required to relocate stored materials and or equipment in jointly occupied areas upon request by the PM at no additional cost to the CM, Owners Representative or Owner. The Subcontractor is required to submit a detailed plan for each work area, identifying equipment type and location, material storage, rigging methods, and erection procedures.
- C. Air Quality and Noise Control: If work is required in an enclosed space, the Subcontractor shall ensure proper air quality and noise control. During any operation that produces airborne contaminants, the Subcontractor shall provide sufficient temporary ventilation to prevent the accumulation of contaminants in the project area and their infiltration into other areas. Wherever internal combustion engines or carbon monoxide producing machines are used within enclosed spaces, positive engineering controls, such as powered ventilation and direct venting of equipment exhaust must be used. Additionally, construction noise must be minimized and kept to that level normally expected for the type of construction work that is being accomplished.

#### **10.11 INSPECTION OF CONSTRUCTION**

- A. Subcontractor shall maintain an adequate inspection system and perform such inspections and tests as will ensure that the work called for by this subcontract conforms to applicable requirements. Subcontractor shall maintain complete inspection and test records and make them available to CM. All work shall be conducted under the general direction of CM and is subject to CM inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of this subcontract.
- B. CM inspections and tests are for the sole benefit of Owners Representative and the Owner and do not relieve Subcontractor of responsibility for providing adequate quality control measures, relieve Subcontractor of responsibility for damage to or loss of the material before acceptance, constitute or imply acceptance, or affect the continuing rights of the CM after acceptance of the completed work.
- C. The presence of a CM inspector does not relieve Subcontractor from any requirement, nor is the inspector authorized to change any term or condition of the specification without the CM's written authorization.
- D. Subcontractor shall promptly furnish, without additional charge, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the CM. The CM may charge to Subcontractor any additional cost of inspection or test when work is not ready at the time specified by Subcontractor for inspection or test, or when prior rejection makes re-inspection or retest necessary. CM shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in this subcontract.
- E. Subcontractor shall, without charge, replace or correct work found by CM not to conform to requirements, unless in the public interest CM consents to accept the work with an appropriate adjustment in the price. Subcontractor shall promptly segregate and remove rejected material from the premises.
- F. If Subcontractor does not promptly replace or correct rejected work, CM may replace or correct the work and charge the cost to Subcontractor or terminate this subcontract for default.
- G. If, before acceptance of the entire work CM decides to examine already completed work by removing or tearing it out, Subcontractor, on request, shall promptly furnish all necessary facilities, labor, and material. If the work is found to be defective or non-conforming in any material respect due to the fault of Subcontractor or its lower-tier Subcontractors, Subcontractor shall defray the expenses of the examination and of satisfactory reconstruction. However, if the work is found to meet applicable requirements, CM shall make an equitable adjustment for the additional services involved in examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.
- H. Unless otherwise specified in this subcontract, CM shall accept or reject, as promptly as practicable after completion and inspection, all work required by this subcontract or that portion of the work CM determines can be accepted separately.

#### **10.12 PROTECTION OF EXISTING IMPROVEMENTS, EQUIPMENT, UTILITIES AND ANTIQUITIES**

- A. Subcontractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed and which do not unreasonably interfere with the required work. Subcontractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during performance, or by the careless operation of equipment, or by workmen, Subcontractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by CM.
- B. Subcontractor shall protect from damage all existing improvements and utilities at or near the work site and on adjacent property of a third party, the locations of which are made known to or should be known by Subcontractor. Subcontractor shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure to comply with requirements of this subcontract or failure to exercise reasonable care in performing the work. If Subcontractor fails or refuses to repair the damage promptly, CM may have the necessary work performed and charge the cost to Subcontractor.

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- C. Federal law provides for protection of antiquities located on land owned or controlled by the Owner. Antiquities include Indian graves or campsites, relics, and artifacts. Subcontractor shall control the work at the job site to ensure that any existing antiquities discovered thereon will not be disturbed or destroyed. Subcontractor shall report the discovery of any antiquities at the job site and upon discovery of unusual materials (e.g., obsidian chips or flakes, bones, darkly stained soils, "arrowheads"), Subcontractor shall stop work at/or around such materials and notify CM. All wildlife shall be protected from destruction or injury due to Subcontractor's operations.
- D. Should Subcontractor encounter any utilities, lines, or structures not shown on the drawings or not correctly located thereon, it shall immediately stop all work adjacent thereto. Subcontractor shall immediately notify CM, which will issue instructions indicating the method of proceeding. If Subcontractor damages any utility, line, or structure, whether or not shown on the drawings, CM shall be immediately notified.

#### **10.13 USE AND POSSESSION PRIOR TO COMPLETION**

- A. CM shall have the right to take possession of or use any completed or partially completed part of the work. Before taking possession of or using any work, CM shall furnish Subcontractor a list of items of work remaining to be performed or corrected on those portions of the work that CM intends to take possession of or use. However, failure of CM to list any item of work shall not relieve Subcontractor of responsibility for complying with the terms of this subcontract. CM's possession or use shall not be deemed an acceptance of any work under this subcontract.
- B. While CM has such possession or use, Subcontractor shall be relieved of the responsibility for the loss of or damage to the work resulting from CM's possession or use. If prior possession or use by CM delays the progress of the work or causes additional expense to Subcontractor, an equitable adjustment shall be made in the price or the time of completion, and the subcontract shall be modified in writing accordingly.

#### **10.14 FIELD ENGINEERING**

- A. General: This section specifies administrative and procedural requirements for field engineering services, including, but not necessarily limited to, the following:
  - (1) Land survey services.
  - (2) Civil engineering services.
  - (3) Structural engineering services.
- B. Submittals
  - (1) Certificates: Submit a certificate signed by the Land Surveyor or Professional Engineer certifying that the location and elevation of all aspects of the work comply with the Subcontract Documents.
  - (2) Final Property Survey: Submit ten copies of the final property survey.
  - (3) Project Record Documents: Submit a record of work performed and record survey data as required by the subcontract documents.
- C. Quality Assurance
  - (1) Surveyor: Engage a Registered Land Surveyor registered in the state where the project is located, to perform land-surveying services required. All record documents prepared by the surveyor are to be sealed as required by state law.
  - (2) Engineer: Engage a Professional Engineer of the discipline required; registered in the state in which the project is located, to perform required engineering services. All record documents prepared by the engineer are to be sealed as required by state law.
- D. Examination
  - (1) The CM will identify existing control points and property line corner stakes.
  - (2) The Subcontractor shall verify layout information shown on the drawings, in relation to the property survey and existing benchmarks before proceeding to layout the work. Locate and protect existing benchmarks and control points. Preserve permanent reference points during construction.
    - i. Do not change or relocate benchmarks or control points without prior written approval. Promptly report lost or destroyed reference points, or requirements to relocate reference points because of necessary changes in grades or locations.
    - ii. Promptly replace lost or destroyed project control points. Base replacements on the original survey control points.
  - (3) The Subcontractor shall establish and maintain a minimum of two permanent benchmarks on the site, referenced to data established by survey control points.

Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
  - (4) Existing utilities and equipment: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. The Subcontractor shall investigate and verify the existence and location of underground utilities and other construction before beginning site work. Prior to construction, the Subcontractor shall verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water service piping.

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#### **E. Performance**

- (1) The Subcontractor shall work from lines and levels established by the property survey, establish benchmarks and markers to set lines and levels at each area of construction and elsewhere as needed to properly locate each element of the project. Calculate and measure required dimensions within indicated or recognized tolerances. Do not scale drawings to determine dimensions.
  - i. Advise entities engaged in construction activities, of marked lines and levels provided for their use.
  - ii. As construction proceeds, check every major element for line, level, and plumb.
- (2) Surveyor's Log: The Subcontractor shall maintain a surveyor's log of control and other survey work. Make this log available to the CM at its request.
  - i. Record deviations from required lines and levels, and advise the CM when deviations that exceed indicated or recognized tolerances are detected. On Project Record Drawings, record deviations that are accepted and not corrected.
  - ii. On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and site work.
- (3) Site Improvements: The Subcontractor shall locate and lay out site improvements, including pavements, stakes for grading, fill and topsoil placement, utility slopes, and invert elevations by instrumentation and similar appropriate means.
- (4) Building Lines and Levels: The Subcontractor shall locate and lay out batter boards for structures, building foundations, column grids and locations, floor levels and control lines and levels required for mechanical and electrical work.
- (5) Existing Utilities: The Subcontractor shall furnish information necessary to adjust, move, or relocate existing structures, utility poles, lines, services, or other appurtenances located in, or affected by construction. Coordinate with local authorities having jurisdiction.
- (6) Final Property Survey: Before Substantial Completion, the Subcontractor shall prepare a final property survey showing significant features (real property) for the project. Include on the survey a certification, signed by the surveyor, to the effect that principal metes, bounds, lines, and levels of the project are accurately positioned as shown on the survey.

#### **10.15 TEMPORARY FACILITIES**

- A. This section specifies requirements for temporary services and facilities, including utilities, placing systems in service, construction and support facilities, employee identification and parking, security and protection of the work.
- B. Temporary utilities required include but are not limited to:
  - (1) Water service.
  - (2) Temporary electric power and light.
  - (3) Telephone service.
- C. Temporary construction and support facilities required include but are not limited to:
  - (1) Temporary heat.
  - (2) Field offices and storage sheds.
  - (3) Temporary roads and paving.
  - (4) Sanitary facilities, including drinking water.
  - (5) Dewatering of Subcontractors construction area.
  - (6) Temporary enclosures.
  - (7) Hoists and temporary elevator use.
  - (8) Temporary project identification signs and bulletin boards.
  - (9) Rodent and pest control.
  - (10) Construction aids, miscellaneous services, and facilities.
- D. Access control and protection of the work required include but are not limited to:
  - (1) Temporary fire protection.
  - (2) Barricades, warning signs, lights.
  - (3) Sidewalk bridge or enclosure fence for the site.
  - (4) Environmental protection.
- E. Division Of Responsibilities:
  - (1) Limited electrical and water service is available. This limited electrical and water service will be in the vicinity of the worksite. The Subcontractor, subject to CM approval, will be responsible for extending these services to those locations

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where it will require them. The quantities and characteristics of these utilities will be limited to that which is available from existing outlets. Locations of available temporary electricity and water are shown on SK# T-002.

- i. The Subcontractor shall arrange with local provider for telephone service. Telephone service shall be at the Subcontractor's expense.
  - ii. It is the Subcontractor's responsibility to distribute drinking water from the point of source and cool the water as necessary. The location of the potable water source is shown on SK# T-001.
  - iii. The Subcontractor is responsible for providing at no cost to the CM it's own electrical and water service it may need in excess of what is provided by the CM.
  - iv. The CM will provide portable toilet facilities in the vicinity of the work.
  - v. The CM will provide waste containers for construction waste (lumber, sheetrock, packing materials, lunch or food waste, etc.) and for ferrous metals and nonferrous metals in the vicinity of the work site. The Subcontractor shall be responsible for daily cleanup of all of its work areas and transport of its waste material to the waste containers provided by the CM. The Subcontractor shall be responsible for segregating its waste into the appropriate waste container. The CM shall be responsible for regular disposal of the waste in these containers. No hazardous wastes are to be disposed of by the Subcontractor in the waste containers supplied by the CM.
  - vi. The CM shall afford Subcontractor and its sub-tiers reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their Work.
  - vii. Subcontractor shall be responsible for all materials delivered and Work performed by it or any of its sub-Subcontractors or suppliers until final completion and acceptance by CM. Subcontractor hereby assumes the risk of loss or damage to all materials and equipment furnished by, to, or on behalf of Subcontractor until final completion and acceptance by CM. Subcontractor shall advise CM in advance of all major shipments of equipment or material and shall coordinate arrival and unloading with CM. Subcontractor shall be responsible for unloading and storing materials shipped to the Project site. All shipments shall be consigned to Subcontractor with freight fully prepaid. Subcontractor shall notify CM 5 days in advance of any shipment.
  - viii. Subcontractor shall, under regulations prescribed by CM, use only established roadways, or use temporary roadways constructed by Subcontractor when and as authorized by CM. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any federal, state, or local law or regulation. When it is necessary to cross curbs or sidewalks, Subcontractor shall protect them from damage. Subcontractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.
- F. Each Subcontractor is responsible for:
- (1) Installation, operation, maintenance, and removal of each temporary service or facility usually considered as its own normal construction activity, as well as cost and use charges associated with each such service or facility.
  - (2) Plug-in electric power cords and extension cords, and supplementary plug-in task lighting and special lighting needed exclusively for its own activities.
  - (3) Its own field office complete with necessary furniture, utilities, and telephone service.
  - (4) Its own storage and fabrication sheds. The location of the field office is subject to CM approval.
  - (5) Temporary heat, ventilation, humidity control, and enclosure of the building where these permanent utilities are necessary for its construction activity, but where these utilities have not yet been installed or placed into service by the responsible Subcontractor.
  - (6) Collection and disposal of its own hazardous, dangerous, unsanitary, or other harmful waste material in accordance with both state and federal laws.
  - (7) Secure lockup of its own tools, materials, and equipment.
  - (8) Construction aids and miscellaneous services and facilities needed exclusively for its own construction activities.
- G. Use Charges
- There shall be no use charges to the Subcontractor for temporary electrical or water service provided by the CM.
- H. Quality Assurance
- (1) Regulations: Each Subcontractor shall comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:
    - i. Building code requirements.
    - ii. Health and safety regulations.
    - iii. Utility company regulations.
    - iv. Police, Fire Department, and Rescue Squad rules.
    - v. Environmental protection regulations.
    - vi. State and federal hazardous materials regulations.
  - (2) Standards: Each Subcontractor shall comply with NFPA Code 241, Building Construction and Demolition Operations, ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library "Temporary Electrical Facilities."



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- i. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services", prepared jointly by AGC and ASC for industry recommendations.
  - ii. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with the normal application of trade regulations and union jurisdictions.
  - iii. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).
- I. Project Conditions
  - (1) Temporary Utilities: At the earliest feasible time, when acceptable to the CM, change over from use of the temporary service to use of the permanent service.
  - (2) Temporary use of permanent facilities: The Installer of each permanent service or facility shall assume responsibility for its operation, maintenance, and protection during its use as a construction service or facility prior to the CM's acceptance, regardless of previously assigned responsibilities.
- J. Placing Systems in Service: It is vital that the Laboratory's operations continue without undue interruption. The Subcontractor shall notify the CM a minimum of twenty-four hours in advance of a contemplated date of any tie-in to the Laboratory systems giving a schedule indicating actual operations and time required. The CM will notify all interested parties and secure approval for the tie-in at the time requested, or if conditions so dictate, advise the Subcontractor when the tie-in can be made.
  - (1) All operations required for the tie-in shutdown and start-up. The Subcontractor will perform the actual tie-in work.
  - (2) No work or tie-ins will be scheduled before all materials and/or equipment required to complete the work is on hand.
- K. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with construction progress. Do not allow hazardous, dangerous, unsanitary conditions, or public nuisances to develop or persist on the site.
- L. Employee Identification and Parking: Employees of the Subcontractor and its sub-Subcontractors will be required to wear identifying badges (furnished by the CM) at all times while performing work at the site.
  - (1) In order to issue the identifying badges, the employees shall report to a location, designated by the CM, prior to beginning work. The identifying badges must be returned to the CM's construction engineer/superintendent prior to the CM's final payment to the Subcontractor. The CM will deduct from the Subcontractor's final payment an amount of \$25.00 for each badge not returned. The CM will deduct a \$25.00 replacement fee from the Subcontractor's progress payment for replacement of individual lost or damaged badges. Initial badges are provided at no cost.
  - (2) The CM will provide designated parking space for the Subcontractor in an area generally accessible to the site of work.
- M. Materials

Each Subcontractor shall provide new materials; or, if acceptable to the CM, undamaged, previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.
- N. Equipment
  - (1) General: Each Subcontractor shall provide new equipment; or, if acceptable to CM, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for the use intended.
  - (2) Water Hoses: Provide ¾ inch heavy-duty, abrasion-resistant, flexible rubber hoses 100 feet long, with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shut-off nozzles at hose discharge.
  - (3) Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion of 125 volt AC plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment.
  - (4) Electrical Power Cords: Provide grounded extension cords, no less than 50 feet long; use "hard-service" cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.
  - (5) Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.
  - (6) Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM, or another recognized trade association related to the type of fuel being consumed.
  - (7) Temporary Offices: Each Subcontractor shall provide its own prefabricated or mobile units or similar job-built construction with lockable entrances, operable windows, and serviceable finishes. Provide heated and air-conditioned units on foundations adequate for normal loading.
  - (8) First Aid Supplies: Comply with regulations of authorities having jurisdiction.
  - (9) Fire Extinguishers: Provide hand-carried, portable, UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended types for the exposures.

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Comply with NFPA 10 and 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

**O. Installation**

- (1) Use qualified personnel for installation of temporary facilities. Locate facilities where they serve the project adequately and result in minimum interference with performance of construction activities. All locations are subject to approval by CM. Relocate and modify facilities as required.
- (2) Each Subcontractor shall provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed, or are replaced by authorized use of completed permanent facilities.

**P. Temporary Utility Installation**

- (1) General: If not provided by the CM, engage the appropriate local utility company to install temporary service or connect to existing service. Where the CM provides only part of the service, provide the remainder with matching, compatible materials and equipment; comply with the CM's recommendations.
  - i. Arrange with the CM and existing users for a time when service can be interrupted, where necessary, to make connections for temporary services.
  - ii. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
- (2) Temporary Electric Power Service: Provide weatherproof, grounded electric power service, and distribution system of sufficient size, capacity, and power characteristics during construction. Include meters, transformers, overload protected disconnects, automatic ground-fault interrupters, and main distribution switchgear.
  - i. Installation of electric power service shall be direct burial in accordance with the National Electrical Code.
  - ii. Power Distribution System: Install wiring overhead, and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 Volts AC 20 ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for surveillance.
- (3) Temporary Lighting: Whenever an overhead floor or roof deck has been installed, install temporary lighting with local switching. The Subcontractor shall install and operate temporary lighting that will fulfill security and protection requirements, without operating the entire lighting system, and will provide adequate illumination for construction operations and traffic conditions.
- (4) Provide earthen embankments and similar barriers in and around excavations and sub-grade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.

**Q. Temporary Construction and Support Facilities Installation**

- (1) Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities as directed by the CM.
  - i. Maintain temporary construction and support facilities until near Substantial Completion.
  - ii. Remove prior to Substantial Completion.
- (2) Provide incombustible construction for offices, shops, and sheds located within 30 feet of permanent building lines. Comply with requirements of NFPA 241.
- (3) Temporary Heat: The Subcontractor shall provide protection of its work from freezing, rain, and from other elements that would be harmful to it. The Subcontractor shall furnish heat or protective shelters or temporary buildings as required for the prosecution and protection of the work. All temporary shelters/buildings shall be of fire-retardant materials.
- (4) Heating Facilities: Except where use of the permanent system is authorized, provide properly vented self-contained LP gas or fuel oil heaters with individual space thermostatic control. **Use of gasoline-burning space heaters, or open burning or salamander type heating units is prohibited.**
- (5) Field Offices: Each Subcontractor that requires a field office must provide an insulated, weather tight, temporary office of sufficient size to accommodate its required personnel at the project site. Keep the office clean and orderly for use for small progress meetings.
  - i. Outside the trailer, provide a sign containing the Subcontractor's name and name and phone number of supervisor. Provide a listing of phone numbers to reach a responsible individual at all times including off-shift and weekend hours.
  - ii. The CM shall provide, either as a part of its field office, or as a separate facility, a room for project meetings.
- (6) Storage and Fabrication Sheds: Install storage and fabrication sheds, sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds may be open shelters or fully enclosed spaces. The location of such facilities require the CM's approval.
- (7) Toilets: Use of existing/permanent toilet facilities in completed facilities will not be permitted.
- (8) Wash Facilities: Install temporary wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.

Provide safety showers, eye-wash fountains, and similar facilities for convenience, safety, and sanitation of personnel.

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- (9) Dewatering Facilities and Drains: Maintain the site, excavations, and construction free of water. Discharge locations to be approved by the CM.
- (10) Temporary Signs: Do not permit installation of unauthorized signs.
  - i. All signage is subject to approval by the CM.
  - ii. Prepare signs to provide directional information to construction personnel and visitors.
  - iii. All jobsite trucks and other vehicles of the Subcontractor shall have a sign on both doors containing the company's name and the name and phone number of the Subcontractor's superintendent.
- (11) Collection and Disposal of Waste: Daily cleanup is required. The Subcontractor shall collect waste, trash, and construction debris from its construction areas daily to the satisfaction of the CM. Failure of a Subcontractor to keep its work area clean will result in a written warning from the CM to the Subcontractor to immediately comply with this requirement and clean its work area. Failure of the Subcontractor to clean its work area within 24 hours of receipt of this written notice will result in the CM cleaning the area on behalf of the Subcontractor and back charging the Subcontractor for all costs associated with the cleanup effort. These costs will be withheld from the Subcontractor's next appropriate progress billing. The Subcontractor is responsible for disposal of all its hazardous, dangerous, or unsanitary waste materials.
- (12) Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate. Cover finished permanent stairs with a protective covering of plywood or similar material so finishes will be undamaged at the time of acceptance.

#### **R. Security and Protection of the Work**

- (1) General: Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer as requested by the CM.
- (2) Temporary Fire Protection: Until fire protection needs are supplied by permanent facilities, install and maintain temporary fire protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10, Standard for Portable Fire Extinguishers, and NFPA 241, Standard for Safeguarding Construction, Alterations, and Demolition Operations.
  - i. Locate fire extinguishers where convenient and effective for their intended purpose.
  - ii. Store combustible materials in containers in fire-safe locations.
  - iii. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways, and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
  - iv. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.
- (3) Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public, of the hazard being protected against. Where appropriate and needed provide lighting, including flashing red or amber lights.
- (4) Protection of the Work: Until final acceptance of the work under this subcontract, the Subcontractor shall continuously maintain adequate protection of its work (including work in progress) from damage, and shall protect from loss or damage in a manner satisfactory to CM all things to be incorporated into its work, including CM-furnished and Owner furnished machinery, equipment, materials, and supplies being handled, whether in storage on or off the site, under the care, custody, or control of the Subcontractor or any of its sub-Subcontractors, including property considered for progress payments, as well as other property of the CM, Owners Representative, or Owner.
  - i. The Subcontractor shall not load or permit any part of any structure to be loaded with a weight that would endanger its safety, and shall provide and maintain adequate temporary supports, shores, and bracing to keep the work safe from failure or damage due to any loads that may be imposed on structures during construction. All material and/or structures shall be adequately secured to prevent displacement by the wind.
  - ii. No work shall be done in finished areas or over finished floors unless due precautions have been taken to prevent soiling or damage resulting from such work.
  - iii. The Subcontractor shall adequately protect adjacent private and public property as provided by law and this subcontract. Temporary protection of Subcontractor occupied and/or operating areas of the Laboratory existing facilities will be the responsibility of the Subcontractor at its expense. Additionally, the Subcontractor shall protect from its work other property on the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.
  - iv. When unforeseen existing utilities and/or other obstructions are encountered within the limits of the Subcontractor's work, the Subcontractor shall immediately notify the CM construction engineer/superintendent before proceeding with the work.
- (5) Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted, or that other undesirable effects might result.
- (6) Dust Control: Control dust emissions during execution of the work. Prevent dust from migrating to areas adjacent to the work site. Limit use of water to prevent erosion. Water trucks shall be used when required to hold down dust on the construction site. Provide hoods, enclosures, and other methods of containment during sandblasting or similar operations.

#### **S. Operation, Termination, and Removal**

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- (1) Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- (2) Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
  - i. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour day basis where required to achieve indicated results and to avoid possibility of damage.
  - ii. Protection: Prevent water filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
- (3) Termination and Removal: Unless the CM requests that it be maintained longer, remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged work, clean exposed surfaces, and replace work that cannot be satisfactorily repaired.
  - i. Materials and facilities that constitute temporary facilities are the property of each respective Subcontractor.
  - ii. Remove temporary paving that is not intended or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that does not comply with requirements for fill or subsoil in the area. Remove materials contaminated with road oil, asphalt, other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at the temporary entrances as required by the governing authority.
  - iii. At Substantial Completion, clean and renovate permanent facilities that have been used during the construction period.
  - iv. Replace air filters and clean inside of ductwork and housings.
    - a. Replace significantly worn parts and parts that have been subject to unusual operating conditions.
    - b. Replace lamps that are burned out or noticeably dimmed by substantial hours of use.

#### **10.16 SITE-WIDE PROGRESSIVE DISCIPLINARY POLICY**

- A. Subcontractor: The Subcontractor and all its lower tier Subcontractors shall incorporate the Site Wide Progressive Disciplinary Policy found in Exhibit 25 of this Section of this solicitation into its day to day on site activities during the execution of this subcontract. The purpose of this policy is to state the position of the CM and its affiliated companies, on administering equitable and consistent discipline of unsatisfactory conduct on the jobsite. This policy ensures fair treatment of all employees in making certain that disciplinary actions are prompt, uniform and impartial. The primary purpose of any disciplinary plan is to correct the problem, prevent recurrence and prepare the employee for satisfactory service in the future. This policy is designed to set minimum standards and is not meant to supersede a Subcontractor's policy or policies which may be more stringent.
- B. The Site Wide Progressive Disciplinary Policy will be reviewed with all Subcontractor employees and employees of their lower tier Subcontractors when they receive the on site safety orientation mentioned elsewhere in this solicitation.
- C. The Subcontractor and all its lower tier Subcontractors are required to have their own Progressive Disciplinary Policy for their on site activities and it is suggested that this policy be part of their site specific Environmental, Safety and Health Plan. If a Subcontractor does not have a Progressive Disciplinary Policy it is to develop one or embrace the Site Wide Progressive Disciplinary Policy found herein as its own.

#### **10.17 SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION**

- A. Work shall be performed in accordance with all the requirements of the subcontract documents, and such specifications and drawings as may be referred to therein, and according to the true intent and meaning of the subcontract documents. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both.
- B. The Subcontractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the CM access thereto. They shall be marked currently to record changes made during construction. They shall be delivered to and become the property of CM upon completion of the Work or termination under other provisions of this Subcontract.
- C. Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the CM is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import shall mean "approved by," or "acceptable to," or "satisfactory to" the CM, unless otherwise expressly stated.
- D. Where "as shown," "as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this Subcontract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place," that is "furnished and installed".
- E. Shop drawings means drawings, submitted to the CM by the Subcontractor, or any lower tier Subcontractor pursuant to a construction Subcontract, showing in detail: (1) the proposed fabrication and assembly of structural elements, and (2) the installation (i.e., fit, and attachment details) of materials or equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, and similar materials furnished by the Subcontractor to explain in detail specific portions of the work required by the Subcontract. The CM may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this Subcontract.
- F. If this Subcontract requires shop drawings, the Subcontractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with Subcontract requirements and shall indicate its approval thereon as evidence

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of such coordination and review. Shop drawings submitted to the CM without evidence of the Subcontractor's approval may be returned for resubmission. The CM will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the CM's reasons therefore. Any work done before such approval shall be at the Subcontractor's risk. Approval by the CM shall not relieve the Subcontractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this Subcontract, except with respect to variations described and approved in accordance with (f) below.

- G. If shop drawings show variations from the Subcontract requirements, the Subcontractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the CM approves any such variation, the CM shall issue an appropriate Subcontract modification, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.
- H. The Subcontractor shall submit to the CM for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings will be retained by the CM and one set will be returned to the Subcontractor.

#### **10.18 INSPECTION OF THE WORK**

- A. If the subcontract documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any Work to be inspected, tested or approved, the Subcontractor shall give CM timely notice of its readiness and of the date arranged so that CM may observe such inspection, testing or approval.
- B. If after the commencement of the Work the CM, Owners representative or Owner determines that any Work requires special inspection, testing or approval, CM will notify the Subcontractor to order such special inspection, testing or approval. If such special inspection or testing reveals a failure of the Work to comply (1) with the requirements of the subcontract documents, or (2) with respect to the performance of the Work, with laws, ordinances, rules, regulations or orders of any public authority having jurisdiction, the Subcontractor shall bear all costs thereof; otherwise, the CM shall bear such costs, and an appropriate Change Order shall be issued.
- C. Required certificates of inspection, testing or approvals required by the subcontract documents shall be secured by the Subcontractor and promptly delivered to CM. Tests not conducted in the presence of CM, unless waived in writing, may not be considered performed.
- D. Neither the observations of the Owner, Owners representative or CM inspections, tests or approvals shall relieve the Subcontractor from its obligations to perform the Work in accordance with the subcontract documents.
- E. All materials furnished and all Work performed under the subcontract shall be subject to inspection by the CM. The Subcontractor shall be held strictly to the true intent of the subcontract documents in regard to quality of the materials, workmanship, and diligent execution of the subcontract. Such inspection may include mill, plant, shop, and/or field inspection as required and CM shall be permitted access to all parts of the Work, including plants where materials or equipment are manufactured or fabricated. CM shall be furnished with such materials, information, and assistance by the Subcontractor and sub-tier as is required to make a complete and detailed inspection.
- F. Work done in the absence of prescribed inspection may be required to be removed and replaced under proper inspection, and the entire cost of the removal and replacement, including the cost of all work which may be furnished by the CM and/or other Subcontractors and used in the work thus removed, shall be borne by the Subcontractor, regardless of whether the Work removed is found defective or not. Work covered up without authority of the CM shall, upon order of the CM be uncovered to the extent required by the CM and the Subcontractor shall similarly bear the entire cost of performing all the work and its subsequent replacement, as directed and approved by the CM.
- G. The Subcontractor shall provide ongoing inspection and testing consistent with industry standards, to insure that the Work is executed in complete compliance with all the Subcontract documents

### **11. CONSTRUCTION PROJECT COMPLETION**

#### **11.1 PROJECT CLOSEOUT**

- A. This section specifies administrative and procedural requirements for project closeout, including but not limited to:
  - (1) Inspection procedures.
  - (2) Closeout requirements for specific construction activities are as defined under the Technical Specification Sections.
- B. Substantial Completion
  - (1) The Subcontractor is responsible for its own inspection of the project or portions of the project to be accepted for beneficial occupancy. After the Subcontractor has performed its inspection and corrected all problems on the project or portions of the project to be accepted for beneficial occupancy, the Subcontractor shall notify the CM in writing that it is ready for final inspection and acceptance. This written notification must be at least seven calendar days prior to the approved end of the subcontract performance period or beneficial occupancy milestone date(s). The CM will arrange for a final inspection and acceptance walk-thru with the Owner and Subcontractor representatives prior to the end of the approved subcontract period of performance or beneficial occupancy milestone date(s). This final inspection and acceptance walk-thru will include but not be limited to:
    - i. Inspection of Work:

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- a. A list of all unfinished work.
    - b. A list of all work not meeting specifications.
    - c. A list of clean-up requirements.
  - ii. Documentation Review:
    - a. A list of "As-Built" drawings to be submitted by Subcontractor.
    - b. A list of outstanding quality control documents to be submitted by Subcontractor.
    - c. A list of tests not accepted by the CM or that have not been submitted.
    - d. Requirements for retesting or resubmission of test reports.
    - e. A list of all required warranties to be submitted by Subcontractor.
    - f. A list of all operating and maintenance manuals to be submitted by Subcontractor.
    - g. Identification of vendor/ manufacturer training provided if any.
- (2) On receipt of the written request for final inspection and acceptance, the CM will either proceed with inspection or advise the Subcontractor of unfilled requirements. The CM will prepare the Certificate of Substantial Completion and minor punch list items following the inspection, or advise the Subcontractor of significant construction that must be completed or corrected before the certificate will be issued. Any significant work so noted as incomplete must be completed prior to the approved end of the subcontract performance period or beneficial occupancy milestone date(s). CM will repeat inspection when requested and assured that work has been substantially completed.
- C. Final Completion
- The Subcontractor shall submit its final invoice to the CM within forty-five calendar days upon receipt from the CM of the Certificate of Substantial Completion and minor punch list items for the project or portions of the project to be accepted for beneficial occupancy. Invoices for portions of the project that are intended for beneficial occupancy will be subject to retention unless it is coincident with the final invoice. This final invoice shall include or be supported by:
- i. The final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
  - ii. The final statement shall include accounting for final additional changes to the Subcontract Sum.
  - iii. A certified copy of the CM's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance.
  - iv. All final closeout/turn over documentation as called for elsewhere in the subcontract.
  - v. Consent of surety to final payment.
  - vi. A final liquidated damages settlement statement (if applicable).
  - vii. Evidence of final, continuing insurance coverage complying with insurance requirements.

## **11.2 FINAL CLEANING**

- A. This section specifies administrative and procedural requirements for final cleaning at Substantial Completion. Special cleaning requirements for specific elements of the work are included in the Technical Specifications.
- B. General Project closeout requirements are included in Paragraph 11.1, of this document.
- C. General cleanup and waste removal requirements are included in the General Conditions and under paragraph 10.5, Temporary Facilities, of this document.
- D. Except as otherwise indicated, each Subcontractor is responsible for final cleaning of its own work. CM is responsible for coordination of final cleaning where more than one Subcontractor is involved in final cleaning of a single area or piece of equipment.
- E. Environmental Requirements: Conduct cleaning and waste disposal operations in compliance with local laws and ordinances. Comply fully with federal and local environmental and anti-pollution regulations.
  - (1) Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
  - (2) Burning or burying of debris, rubbish, or other waste material on the premises is not permitted.
- F. Materials

Cleaning Agents: Use cleaning materials and agents recommended by the manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property, or that might damage finished surfaces.
- G. Final Cleaning
  - (1) General: Provide final cleaning operations when indicated. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit of work to the condition expected, based on the type of facility, from a commercial cleaning and maintenance program. Comply with manufacturer's instructions.
  - (2) Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion for the entire project or a portion of the project.
    - i. Clean the project site, yard, and grounds in areas disturbed by construction activities, including landscape development areas, of rubbish, waste materials, litter, and foreign substances. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits. Rake grounds that are neither planted nor paved, to a smooth even-textured surface.
    - ii. Remove tools, construction equipment, machinery, and surplus material from the site.

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- iii. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
  - iv. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
  - v. Broom clean concrete floors in unoccupied spaces.
  - vi. Vacuum clean carpet and similar soft surfaces, removing debris and excess nap. Shampoo if required.
  - vii. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
  - viii. Remove labels that are not permanent labels.
  - ix. Touch-up and otherwise repair and restore marred exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored, or that show evidence of repair or restoration. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
  - x. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
  - xi. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
  - xii. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills. Clean ducts, blowers, and coils if units were operated without filters during construction.
  - xiii. Clean food service equipment to a sanitary condition, ready and acceptable for its intended use.
  - xiv. Clean light fixtures, lamps, globes and reflectors to function with full efficiency. Replace burned out bulbs, and defective and noisy starters in fluorescent and mercury vapor fixtures.
  - xv. Leave the project clean and ready for occupancy.
- (3) Removal of Protection: Remove temporary protection and facilities installed during construction to protect previously completed installations during the remainder of construction period.
- (4) Compliances: Comply with governing regulations and safety standards for cleaning operations. Remove waste materials from the site and dispose of in a lawful manner.

Where extra materials of value remain after completion of associated construction have become the Owner's property, arrange for disposition of these materials as directed.

### **11.3 TURN OVER DOCUMENTATION**

- A. This section specifies administrative and procedural requirements for subcontract turn over documentation.
- B. Prior to completion of the project or portions of the project to be accepted for beneficial occupancy, the Subcontractor shall prepare and submit one set of turnover documentation to the CM. Turnover documentation shall consist of:
  - (1) Introduction to the subcontract.
  - (2) Brief subcontract description.
  - (3) Scope changes (Change Orders).
  - (4) Equipment lists.
  - (5) Punch list with all items signed-off by the CM.
  - (6) Test Reports.
  - (7) Red Line "As-Built" Drawings and specifications.
  - (8) Other items defined in the subcontract documents.
- C. "As-Built" Drawings And Specifications
  - (1) Mark-up Procedure: During the construction period, maintain a set of blue- or black-line white-prints of subcontract drawings and specifications for "As-Built" turn over documentation purposes.
    - i. Mark these drawings to indicate the actual installation where the installation varies appreciably from the installation shown originally. Give particular attention to information on concealed elements of construction that would be difficult to identify or measure and record later. Items required to be marked include but are not limited to:
      - a. Dimensional changes.
      - b. Revisions to details.
      - c. Depths of foundations below the first floor.
      - d. Locations and depths of underground utilities.
      - e. Revisions to routing of piping and conduits.
      - f. Revisions to electrical circuitry.
      - g. Actual equipment locations.
      - h. Duct size and routing.
      - i. Locations of concealed internal utilities.
      - j. Changes made by Change Order.
      - k. Details not on original subcontract drawings.

## **Section H**

### **TERMS AND CONDITIONS FOR CONSTRUCTION SERVICES**

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- ii. Mark completely and accurately "As-Built" drawings and specifications
  - iii. Mark record sets with red erasable colored pencil; use other colors to distinguish between changes for different categories of work at the same location.
  - iv. Mark important additional information that was either shown schematically or omitted from original drawings.
  - v. Note construction change directive numbers, alternate numbers, field order numbers, field bulletin numbers, bulletin numbers, change order numbers, and similar identification.
    - a. Accurately record information in an understandable drawing technique.
    - b. In the case of concealed installations, record and check the mark-up prior to concealment.
- (2) Organize into sets, bind each set with durable paper cover sheets, with appropriate identification, including titles, dates, and other information on cover sheets and label sets for the CM's use.
- D. Recording
- (1) Post changes and modifications to the "As-Built" drawings and specifications as they occur. Do not wait until the end of the subcontract. The CM may periodically review "As-Built" documentation to assure compliance with this requirement.
- (2) PACKAGING OF TURN OVER DOCUMENTATION: Organize turn over documentation into suitable sets of manageable size. Index and bind in individual heavy-duty 2-inch, 3-ring vinyl-covered binders, with pocket folders for folded sheet information. The cover sheet of each binder should indicate, as a minimum, the following information:
- i. SNS Conventional Facilities.
  - ii. Oak Ridge National Laboratory.
  - iii. Knight/Jacobs Project Number F5-2681-00.
  - iv. Subcontract Name.
  - v. Subcontract Number.
  - vi. Subcontractor Name.
  - vii. Subcontractor Address.